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EXCAVATING ENGINEER

FOUNDED 1905

Snake River Mining Co. dredging for gold with 8-cu. ft. placer dredge on Yankee Fork of Salmon River, Idaho

Vol. XI July, 1940

Where You Want It... When You Want It...

FORWARD
SIDEWARD
OR
BACKWARD

A Bucyrus-Monighan walking dragline in action is a picture of time-saving mobility as it moves about in the course of its work. It sidesteps to dig a steep highwall, then moves towards the edge of the cut to gain dumping reach and decrease swing angle; it moves back to cut clearance for the drag rope, then moves towards the cut for deep digging and clean up.

It travels in whatever direction the walking shoes point, changes direction simply by swinging the revolving frame — no special steering mechanism needed. With its exclusive rolling cam walking action, a Bucyrus-Monighan takes every step smoothly, safely, quickly. Rough or rocky ground seldom bothers because the walking shoes are mounted to pivot fore-and-aft and sidewise, thus conforming to any ground surface for a firm grip. The machine is always ready to step off in any direction necessitated by working conditions — away from slides, along the edge of steep banks, around obstructions, out of the way of trouble.

* One of many reasons why

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BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

Wire rope "architect" at work ... for YOU!

To give the finished product maximum service, safety and economy, Macwhyte Wire Rope is carefully blueprinted by "architects" before any actual manufacturing starts. These men are Macwhyte's highly skilled design engineers.

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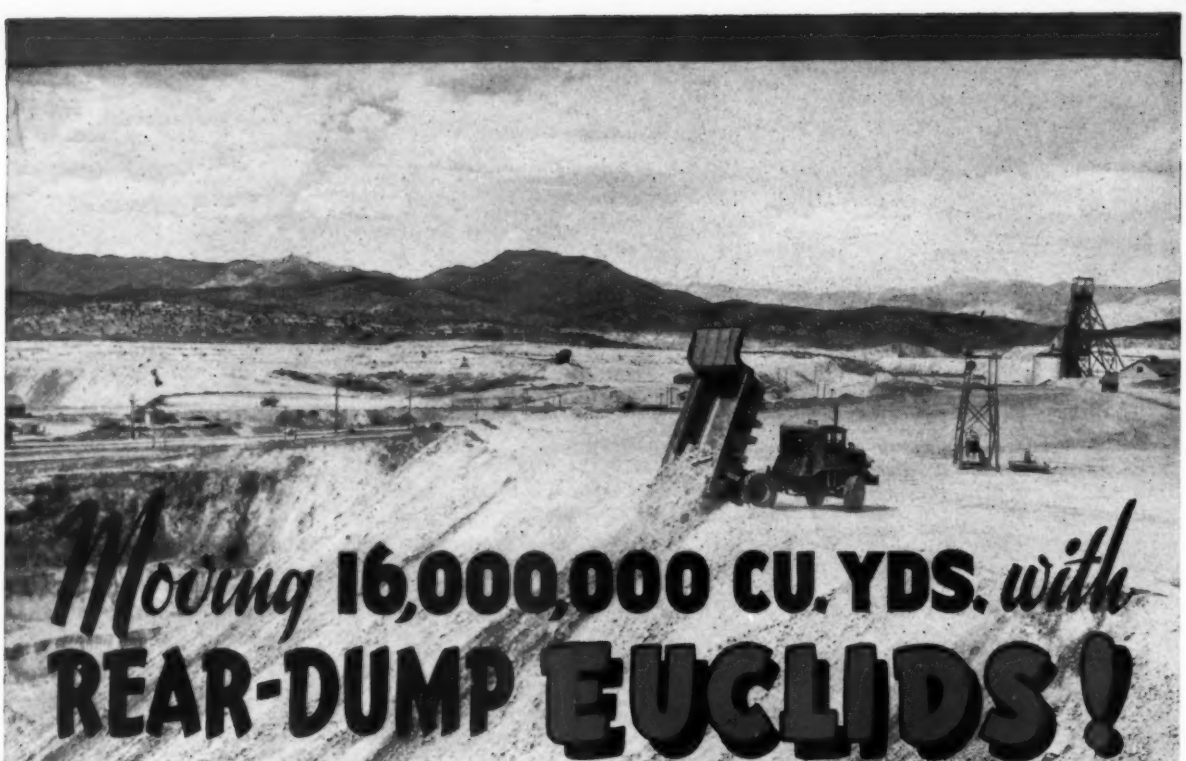

Moving 16,000,000 CU. YDS. *with* REAR-DUMP EUCLIDS!

The Isbell Construction Co. of Reno, Nevada is moving about 30,000 tons of overburden every working day of fifteen hours at this big open pit operation for one of the large copper producers in eastern Nevada.

Loaded by 2½ cu. yd. shovels, 23 Rear-Dump Euclids carry full 15-ton loads on hauls up to one mile in length. Working at an altitude of approximately 7,000 ft. the Euclids have plenty of power and speed for the long hauls and maximum adverse grades of 8%.

A leading contractor in the West, Isbell Construction purchased 10 Rear-Dumps of 15-ton capacity in 1943 and now has a total of 23 Euclids. Coming from men who know equipment and use it on the toughest jobs, these repeat orders are evidence of the efficient and reliable performance that is built into every Euclid.

Write for facts and figures on what Euclids can do for you on present or future work.

The EUCLID ROAD MACHINERY Co.
CLEVELAND 17, OHIO

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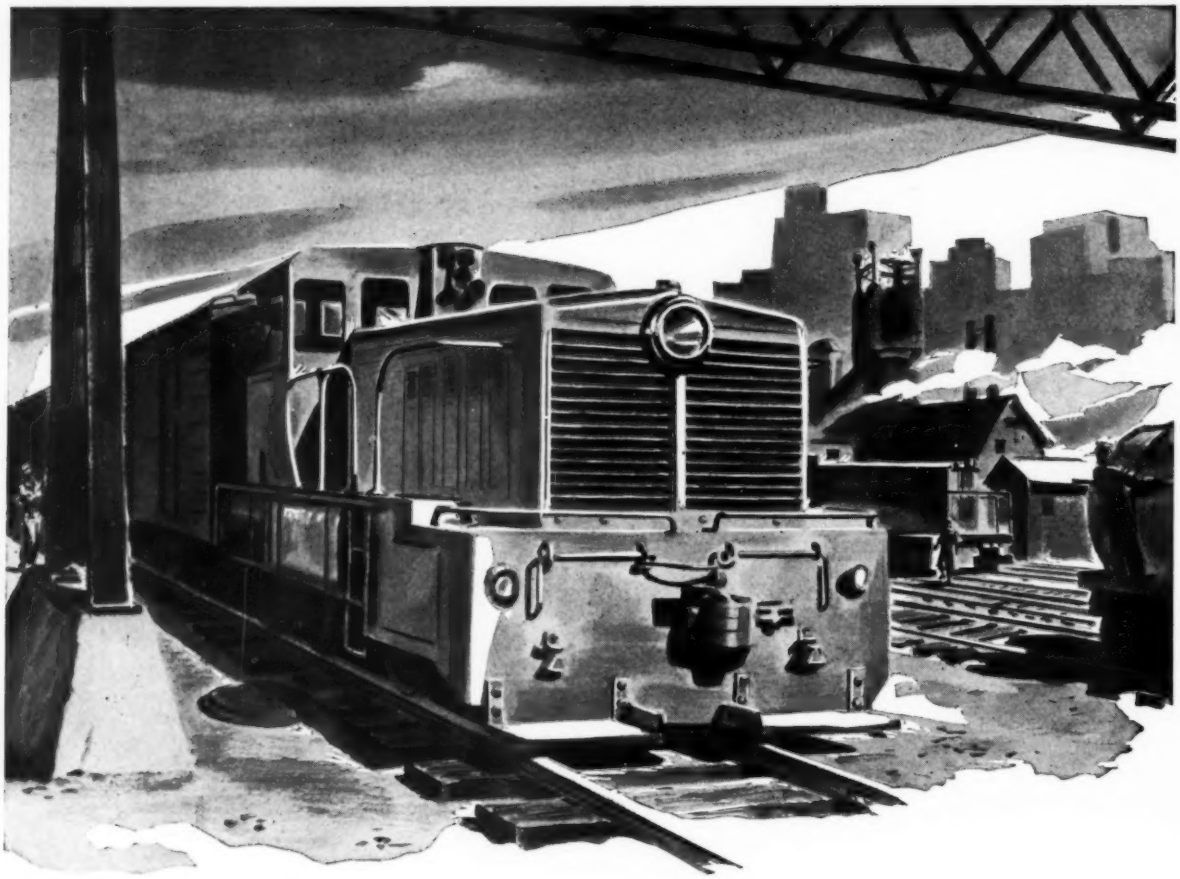

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YES, this little lady, a Cooper-Bessemer Diesel-powered switcher, got her job through pull — the kind of pull that makes fast work of shunting heavy freight cars by the score.

Cooper-Bessemer Diesels have just the pull it takes, and have been demonstrating that fact for years in switchers and other locomotives, big and little. They combine all the features that helped prove Diesels a natural for railroad service: clean power . . . incredible stamina . . . low maintenance . . . unequaled thermal efficiency . . . space economy . . . smooth starting . . . rapid acceleration . . . sensitive control.

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No matter whether your Diesel assignment is tough or easy, mobile or stationary, you want the greatest output, the utmost reliability your money can buy. So check your needs with Cooper-Bessemer.

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there's a lot of endorsement in 33 ORDERS

Three More for Peter Kiewit Sons Co. Omaha, Neb.

Thirty-three machines are a lot of machines in any man's language, and Peter Kiewit Sons Co. is one of the outstanding and successful contractors of the West.

Nobody has to guess very far on why this company has bought so many Northwests. There can be only one answer—successful and outstanding performance—the kind of performance that makes money—the kind of performance you'd like to have.

From coast to coast you can name, name after name of leading outfits that buy Northwests again and again. There is no better endorsement than a repeat order. Check into it yourself while you are planning ahead.

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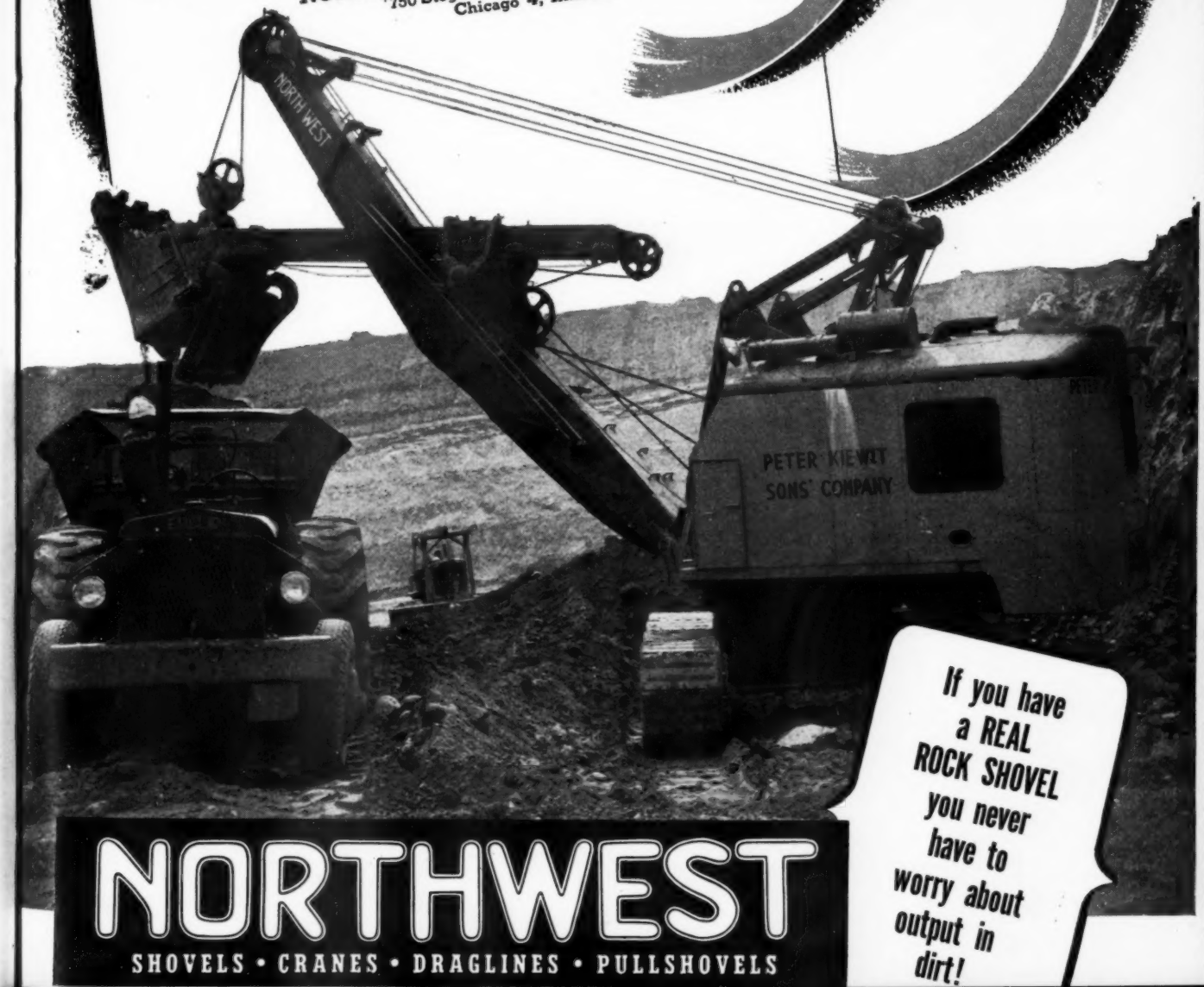

NORTHWEST

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If you have a REAL ROCK SHOVEL you never have to worry about output in dirt!

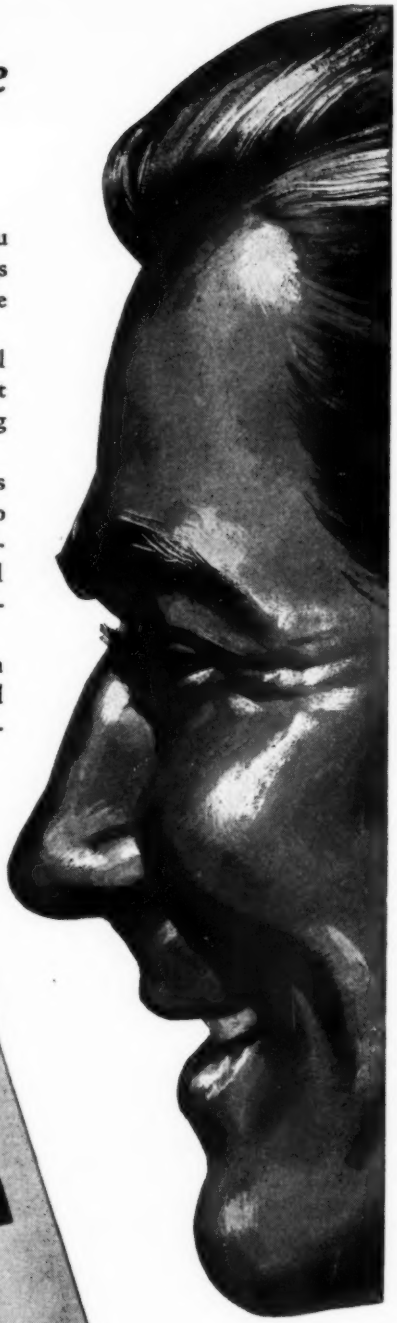
To help increase "Take-Home Savings"

THE Treasury Department has published two new booklets to help you and your employees realize the utmost benefit from your Payroll Savings Plan—benefits proportioned to the extent your employees add to "take home savings" by buying and holding U. S. Savings Bonds.

"Peacetime Payroll Savings Plan" for key executives offers helpful suggestions on the conduct of the Payroll Savings Plan. In addition, it quotes leaders of Industry and Labor and their reasons for supporting the Plan.

"This Time It's For You" is for distribution to employees. It explains graphically how this convenient, easy thrift habit works. It suggest goals to save for and how much to set aside regularly in order to attain their objectives. If you have not received these two booklets, or desire additional quantities, communicate with your State Director of the Treasury Department's Savings Bond Division.

See your Payroll Savings Plan through to maintain your share in America's future. It is sound economics and a powerful force for good today—and tomorrow—as a safeguard for stability and a reserve of future purchasing power—money that is kept within your community.



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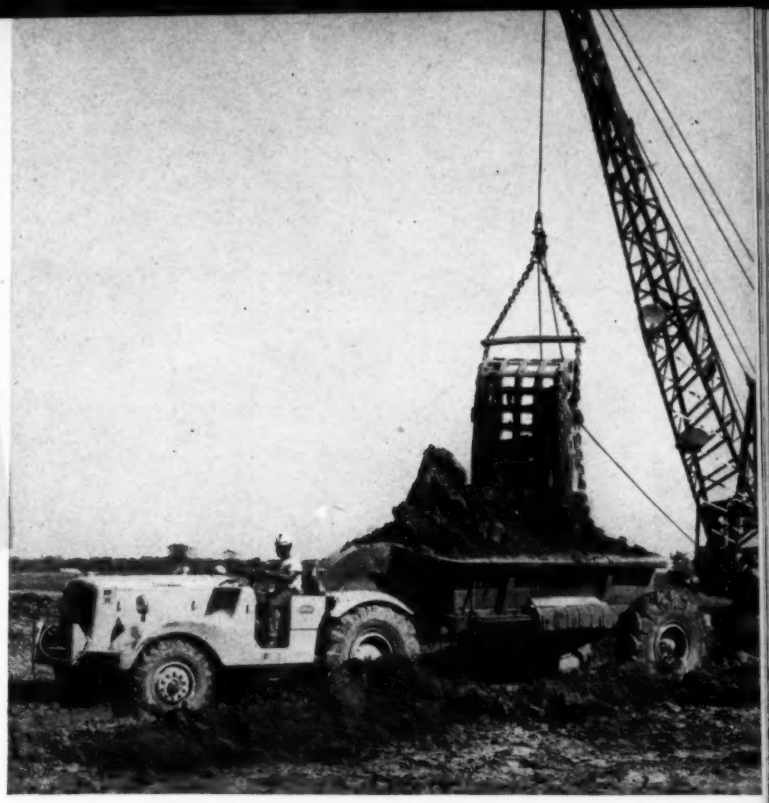
"CATERPILLAR" ACROSS THE BOARD



One of 5 "Caterpillar" Diesel DW10 Tractors with W10 Wagons, working night and day on the levee near Joiner, Ark. Each delivers about 90 yds. of earth per hour on a 3000-ft. round trip. The Lorain dragline is "Caterpillar" Diesel powered.

A "Caterpillar" Diesel No. 12 Motor Grader maintains haul roads for the fast-moving DW10s that carry earth to the levee.

There are three solid reasons why so many contractors are standardizing on "Caterpillar" Diesel equipment. One is performance—more work, in less time, at lower cost. Another is the ruggedness, dependability and operating economy of the machines themselves. The third is "Caterpillar" dealer service—fast, thorough, and providing the advantage of interchangeable parts.

Clyde O. LaPlant, of Sikeston, Missouri, tells why he used 100% "Caterpillar" Diesels on a recent levee contract in Arkansas, and puts it in few words: "For economy, parts, service and performance they are best."

Working on this job were two track-type "Caterpillar" Diesel Tractors—a D8 and a D7—for bulldozing and disking; five "Caterpillar" Diesel DW10 Tractors, pulling "Caterpillar" W10 Wagons; a "Caterpillar" Diesel No. 12 Motor Grader, and two Lorain draglines, both powered by "Caterpillar" Diesel Engines.

"Caterpillar" builds both track-type and wheel-type tractors—matched "Caterpillar" Bulldozers, Scrapers and Wagons to team up with them—and "Caterpillar" Diesel Motor Graders and Engines. The "Caterpillar" line gives you every unit needed to *zone your equipment* for LOWEST COSTS ON EARTH.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

CATERPILLAR DIESEL

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ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT

THE RIGHT CURVE AT THE "BUSINESS END"

You can dig more easily and carry bigger loads with Bucyrus-Erie Bullgraders and Bulldozers because efficient blade curvature keeps the dirt rolling freely. Developed during years of experiment by the most experienced engineers in the dirt-moving industry, these blades combine the advantages of easy penetration, efficient suction, and rolling action that contributes to fast, easy cutting and discharge of dirt. They make work easier because they really work! Bucyrus-Erie blades stand up to long, hard digging, too, because they have the strong construction that has proved its ability to withstand plenty of hard knocks. And backing up efficiency of blade action are the many other features that have made Bucyrus-Erie Bullgraders and Bulldozers outstanding: easy adjustments, easy operation, maintenance of original tractor balance, full visibility, versatility of use. Ask your International TracTracTor Distributor about them!

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN
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SEE YOUR INTERNATIONAL TRACTRACTOR DISTRIBUTO

LIKE A CHAMPION MARKSMAN..

FORM-SET ROPE IS *Relaxed*

The sharpshooting rifleman can't afford tension. Watch him as he sights on the bull's-eye. Keen, alert, a study in concentration, he's nevertheless relaxed. The slightest twitch or jerk as the trigger is squeezed would throw him off line.

Much of that same relaxed effect is present in Form-Set rope—Bethlehem's preformed. Wires and strands have been helically shaped in advance, before being laid in the rope. They retain this helical shape; they have no urge to uncoil. This is because the preforming process coaxes the tension from each individual strand.

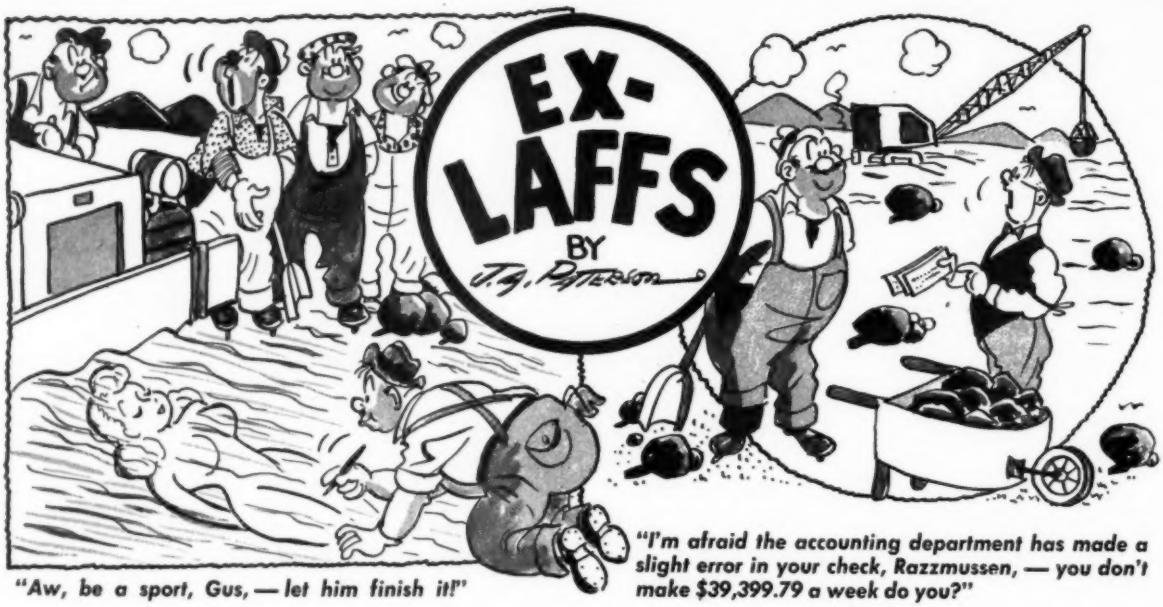
Broken Form-Set wires lie perfectly flat; they don't bush out to snag on hands or clothes. You can see for yourself by cutting some Form-Set rope. No flying apart at the ends. You have to *lift* each strand or wire to get it apart from its mates.

But the most valuable feature of preformed rope is its great flexibility. Being relaxed, it naturally bends more easily over your sheaves and drums. This means far less bending fatigue . . . and that, in turn, means longer life . . . greater economy.

Every grade, size, and type of Bethlehem wire rope is available in the Form-Set construction. Get full particulars from the nearest Bethlehem office or distributor.

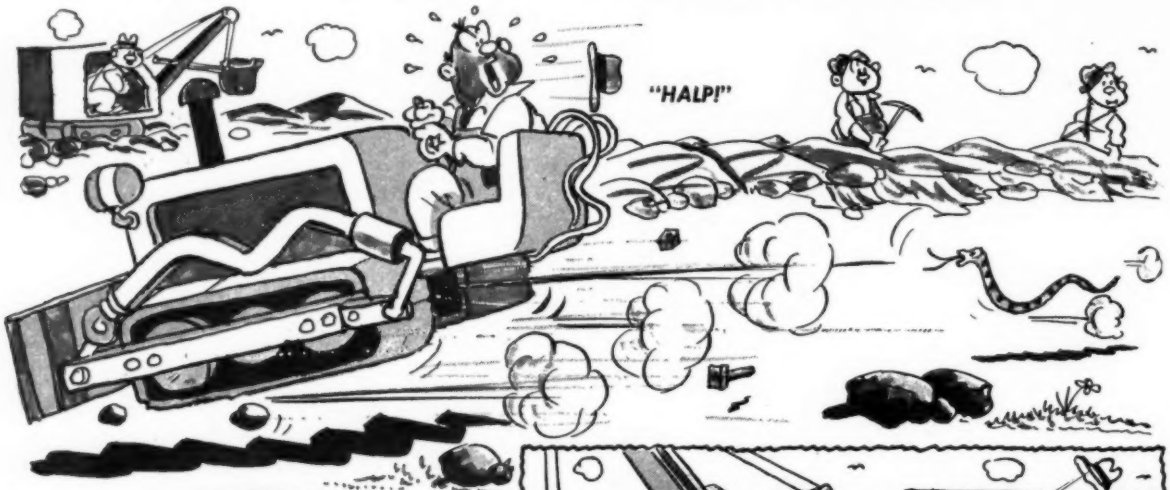
A cut section of Form-Set rope. The strands have been purposely lifted apart. They can't spring up by themselves, for the tension, the urge to uncoil, has been removed by preforming.

When you think WIRE ROPE think BETHLEHEM



"Aw, be a sport, Gus, — let him finish it!"

"I'm afraid the accounting department has made a slight error in your check, Razzmussen, — you don't make $39,399.79 a week do you?"



"Sure, Sure! I know the housing situation is simply awful, Yardley but after all —"

"Well say something — ain't you the - - - Corporal Kraufrulege what was stationed with the Army a while in Iceland?"

What it takes..

..to Handle Heavy Tonnage

U·S·S AMERICAN TIGER BRAND is as strong, as tough and as tireless as wire rope comes.

Consider, for instance, the experience of the Bonneville Dam contractor who, by using TIGER BRAND haulage lines, button lines and hoist lines on his two cableways, delivered two times more tonnage of concrete than the rope previously used. The extraordinary part of this operation was that after these ropes were removed from the cableways and put into service on excavating shovels and draglines, they still gave 75% of the life of ordinary new rope!

You can depend on TIGER BRAND to help reduce maintenance and replacement costs . . . to do a more efficient job in every operation requiring wire rope. See your supplier today. He has, or can quickly get, TIGER BRAND for you. And if you have any questions our wire rope experts will gladly work with you . . . without obligation.

LISTEN TO . . . the "Hour of Mystery" presented by United States Steel on the radio every Sunday evening. Consult your local newspaper for time and station.

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UNITED STATES STEEL

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TIGER BRAND *Wire Rope*

STRAIGHTER DITCH BECAUSE SHOVEL-PULL SHOVEL BOOM WILL NOT WEAVE

The same boom handles both shovel and pull shovel dipper on the new Koehring 205. Extra strength, extra resistance to side sway, built in to meet shovel as well as pull shovel requirements, eliminates weaving when the Two-in-One Boom is used on the pull shovel.

DIPPER WON'T TURN AWAY FROM CUT

Pull shovel dipper won't turn away from the cut, because the wide shovel-type boom point permits a wide connection to the pull shovel dipper arm. Side cutters can be used to full advantage, widening a trench or dressing the side of a basement excavation.

BOOM FOOT DRUM IMPROVES DIGGING

The boom foot drum, built in to accommodate the shovel crowd, keeps digging cable from slacking off, keeps dipper close up to boom to avoid spilling when boom is raised. Because the same Two-in-One Boom is used for both shovel and pull shovel, the 205 shovel-pull shovel combination costs 25% less than the conventional combination using two separate booms.

KOEHRING COMPANY • *Milwaukee 10, Wis.*

KOEHRING HEAVY DUTY

HEAVY-DUTY CONSTRUCTION EQUIPMENT

Hercules Powder Company Announces

Improved Water Resistance for the Hercomites

This important improvement in the Hercomites, and almost all of the Hercules ammonia dynamites, indicates greater effectiveness and economy for a wider range of blasting jobs than ever before. *Investigate this development today.*

Tamptite Cartridges save man-hours

The new Hercomites* are available in Hercules Tamptite Cartridges. These Cartridges expand when tamped, let the dynamite fill the bore hole snugly, leaving virtually no air space. No slit cartridges . . . spilled powder . . . but a concentrated charge, where it's most effective!

*REG. U. S. PAT. OFF. BY HERCULES POWDER CO.

HERCULES

XR-62

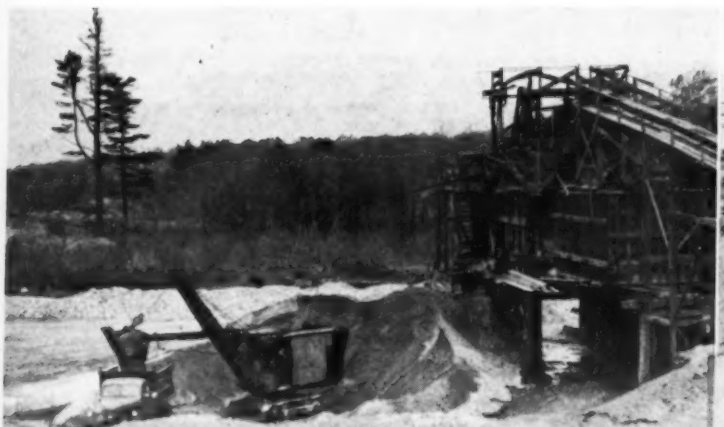
EXPLOSIVES DEPARTMENT *HERCULES POWDER COMPANY* INCORPORATED 972 KING ST., WILMINGTON 99, DEL.

SAND AND GRAVEL *in the* Boston Area

Edward T. Dwyer, Videtta Construction Company, and New England Sand and Gravel Company use new equipment to help supply sand and gravel for postwar construction in Boston area.

NEW ROAD CONSTRUCTION and road maintenance work, a postwar building boom, and the expansion of the Logan International Airport on Boston Harbor that will require a million cu. yds. of fill before the end of the year, have set an unprecedented demand for sand and gravel in the Boston area. Some new excavating equipment has begun to trickle into the area to augment older machines that have been forced to carry the load during the war years when all new equipment was sent to the military services or to companies with high priorities for the production of war materials. This additional equipment is helping contractors of the area to keep ahead of demand for their sand and gravel products, but not enough new machines have been delivered in the area to prevent sand and gravel production from being a major problem. And since sand and gravel plants in this New England area can be operated only about eight months of the year because of weather conditions, the March to November operating season is an especially busy one this year.

This is the story of three prominent sand and gravel operators



• Pit scenes of Boston area sand and gravel producers. Left: Twenty year old ⅝-cu. yd. General shovel loading truck in 29-acre pit of Videtta Construction Co. Above: Truck dumping into 20-cu. yd. hopper from ramp at Edward T. Dwyer's plant in Braintree. Below: Northwest and Lorain ¾-cu. yd. shovels load trucks in pit of New England Sand and Gravel Company at Framingham.

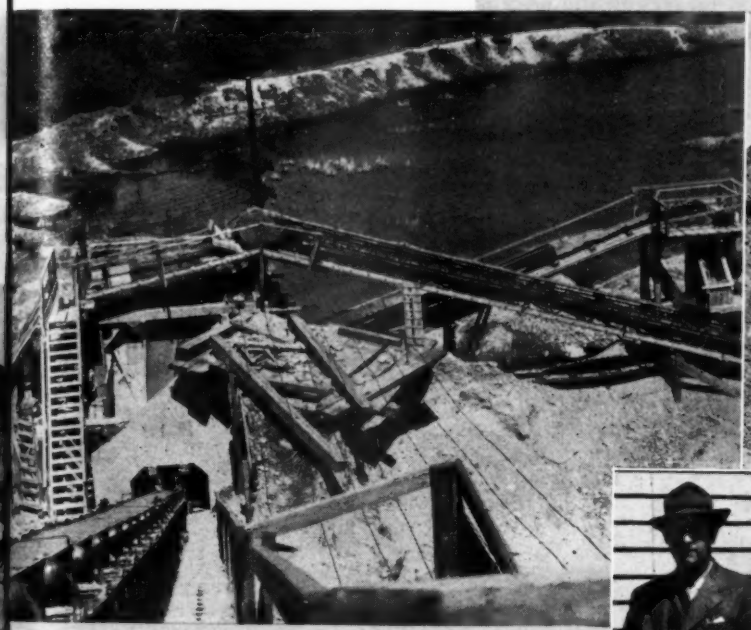
around Boston, Edward T. Dwyer of Braintree, Mass.; Videtta Construction Company of Peabody, Mass., and New England Sand and Gravel Company of Framingham, Mass., operated by Frank Generazio. All of them supply sand and gravel for state roads, local municipalities, and for fill and their products include brick sand, concrete sand, roofing gravel and gravel ranging in size from ½-inch to 1½-inches.

— Edward T. Dwyer —

Edward T. Dwyer has been in the sand and gravel business for 40 years in Braintree and he was the first to screen gravel on the South Shore of Boston Bay. He originally used horses, scoops and

• Above and Below, Right: Views of Bucyrus-Erie ½-cu. yd. shovel loading sand and gravel to trucks from Edward T. Dwyer's auxiliary pit at Braintree. The trucks make a five-mile round trip haul to the plant.

Left, Below: Feeder system to Dwyer's preparation plant which has a capacity of 1200 cu. yds. a day. Water storage pond is in background.



• Below: A Bucyrus-Erie with a ½-cu. yd. Clamshell bucket on a channel boom, enlarging a foundation.

• Below: Dwyer's Bucyrus-Erie ¾-cu. yd. shovel excavating for new housing project in Braintree. Right: (Left to Right) Edward F. Dwyer, manager; Dominic Panano, assistant superintendent, and Edward T. Dwyer, owner.

horsedrawn bottom dump wagons and at one time had 84 horses in his own stables. Later he added a Fordson tractor to his equipment and this was his first step toward the modern mechanized plant that he operates today.

Edward T. Dwyer operates two pits because his regular pit, where the screening and washing plant is located, is flooded about half of the year. The auxiliary pit is about two and one-half miles from the preparation plant in the regular pit and a new Bucyrus-Erie ½-cu. yd. shovel is being used there to load out to six Mack trucks, one 9-cu. yd. and five 7-cu. yd. capacity which haul the gravel to the screening plant. It takes about 16 passes to fill the trucks which average eight cu. yd. loads. Because of the nature of the material the dipper cannot be heaped. A recent test on fuel consumption on the shovel indicated that the machine runs an average of 28 hours on a 40-gallon tank of diesel fuel which costs about nine cents a gallon. Thus it costs Dwyer about 13 cents an hour for fuel to operate his ½-cu. yd. shovel.

Screening and Washing Plant

The screening and washing plant produces an average of 1200-cu. yds. of material per eight-hour shift for five days a week. Twenty Mack and one Ford dump trucks are used to deliver the sand and gravel to various jobs in the locality and many of the customers come to the pit for their loads. The six trucks used to haul unprepared material from the auxiliary pit to the preparation plant are included in this total of 20 trucks owned and operated by the company. When the regular pit is put into operation these trucks are also used to deliver sand and gravel from the screening and washing plant.

The pits run about 60% sand and 40% gravel. The trucks dump the pit-run sand and gravel into a 20-cu. yd. hopper from a ramp and the material is fed by a Barber-Greene mechanical feeder to a 100-ft. long 24-inch conveyor belt to a bull screen with 1½ and 3-inch perforations. The gravel that drops through the 1½ screen goes to a 3 x 10 triple deck Telsmith vibrating screen and stone between 1½-inch and 3-inch goes to a 36-inch Telsmith cone crusher.

Stone from 3 to 6 inches, the largest size that can pass over the grizzly at the feeder, passes to a 9 x 16 Telsmith jaw crusher and is carried on a return conveyor belt to the primary belt. The material is washed with two Telsmith cone washers, a No. 7 and a No. 8. Water for washing is pumped by an eight-inch Fairbanks-Morse electric pump from a pond 12 feet deep, one-eighth mile long and 500 feet wide dug with draglines. Water in this pond comes from natural drainage of the area. After being used the water passes through settling ponds and returns to the original pond from where it is again used. The plant has a capacity of 1200 cu. yds. a day.

Excavating Business

In addition to the sand and gravel plant Edward T. Dwyer operates an excavating, grading and road construction business. From one-fourth to one-half of the screening plant's production is used in this other work. At the time of the writer's visit the company had a Bucyrus-Erie 19-B equipped with a ½-cu. yd. clamshell bucket boom excavating for an addition to a store in Quincy, Mass., and a Bucyrus-Erie 20-B ¾-cu. yd. shovel excavating for a new housing project in Braintree. The store excavation is 50 x 80 feet and is nine feet deep. The company is also in the heavy machinery hauling business and uses two pneumatic-tired Rogers semi-trailers, one 20-ton and one 30-ton, powered with a BM Mack gasoline engine truck and an AC Mack with a 150 h.p. diesel motor. In addition to hauling on contract these trailers are used to transport the shovels from the pit to other work that may come up and then back to the pit. As soon as it can get equipment the company is also planning to go into the transit mix concrete business.

Other equipment owned by Dwyer includes a gasoline-powered Barber-Greene crawler type bucket loader used for loading sand at the preparation plant. The company also has two gasoline-powered Buffalo-Springfield rollers, one 12-ton and the other 1½-ton, a Caterpillar road grader with a 10-ft. blade, two winch trucks for loading heavy supplies on contract, two International TracTracTors, a TD-14 and a TD-9 equipped with Gar Wood blades and trench hoe, clamshell and dragline equipment for the shovels. The company has a Bucyrus-Erie 22-B ¾-cu. yd. diesel shovel on order.

Edward T. Dwyer is the owner of the company and his son, Edward F. Dwyer is manager. George L. Dwyer, a brother of Edward T. is superintendent of the screening plant and Dominic Panano is assistant superintendent. The company employs 35 men.

— Videtta Construction Company —

The Videtta Construction Company operates a 29-acre sand and gravel pit at Peabody that was opened by them in 1940 and has produced an average of 75,000 cu. yds. a year. Concrete sand runs about 65% of the volume of this pit, between 20 and 25% of the volume is stone, and the rest is brick sand.

In addition the company has opened a pit at Danvers, about a mile and a half from the Peabody pit, to produce fill for the Logan International Airport. The Danvers pit is about 15 miles away, but is the nearest borrow pit to the Logan International Airport which is requiring about 1,000,000 cu. yds. of fill under two contracts that must be completed before the end of the year. This airport on Boston Harbor is being expanded out into the water and two islands are being levelled. After the fill is completed it is planned to pave it with asphalt for a few years until settlement is completed and then to pave it with concrete.

There are from 26 to 30 trucks of various sizes and makes hauling from the Danvers pit to the airport. These trucks are loaded by a Bucyrus-Erie 22-B gasoline powered ¾-cu. yd. shovel recently delivered to the Videtta Construc-

tion Company. This shovel loads out an average of 1300 tons a day and has loaded out 2200 tons of fill in a 10-hour day. Land at the Danvers pit is cleared by bulldozers and there is little or no overburden. Large boulders are pushed aside by the Allis-Chalmers-mounted Baker dozer. As the pit is expanded there will be a great deal of tree clearance work needed and it is expected that the trees on this property will be sold for lumber.

The Videtta Construction Com-

• Above, Left: Michael Videtta, general manager of Videtta Construction Co. Above, Right: General ¾-cu. yd. shovel, one of two used in pit, loads truck with material for Videtta's preparation plant which has average production of 500 tons a day. Conant bucket loader to right is used on stockpiles. Pit floor around shovels is kept clear of boulders by Allis-Chalmers tractor with Baker bulldozer. Below: Bucyrus-Erie 22-B ¾-cu. yd. shovel loading out fill for Logan International Airport at pit in Danvers. This shovel keeps 26 to 30 trucks busy on 30-mile round trip haul. The Danvers pit is nearest the Airport of all pits in the area.

pany operates two General gasoline powered shovels in its Peabody pit, one of ⅝-cu. yd. capacity that is 20 years old and the other of ¾-cu. yd. capacity that is eight or nine years old. These shovels are assisted by the Bucyrus-Erie shovel when it can be spared from the Danvers pit. It does general loading, stripping and stockpiling work. An Allis-Chalmers tractor with Baker bulldozer is used for cleaning up around the pit. A Conant bucket loader is used on the stockpile.

The shovels in the Peabody pit load to four trucks, two Sterlings of 7- to 10-ton capacity, an International and a Dodge, each of two-ton capacity. The trucks dump from a ramp into a feeder which supplies the material to a 110-ft. long 20-inch wide conveyor belt which feeds a vibrating screen which produces fines for brick sand, concrete sand, pea gravel and one-inch stone.

Washing Plant

Water for the washing plant is supplied from a pond that was dug next to the plant. A five-inch gasoline pump supplies 400 gallons of water a minute to a five-inch pipe which is reduced to four inches before entering the plant. After the water has been used it is returned to its source through two settling ponds.

The screening plant is operated from March to December and a stockpile of at least 20,000 tons is kept on hand at all times. Last year the state alone purchased 15,000 tons of sand during the winter months for spreading on icy pavements. The screening and washing plant has a maximum production capacity of 700 tons an eight-hour day and the average production is 500 tons a day.

The Videtta Construction Company is operated by Nicholas Videtta, his son, Michael, who is general manager, and a daughter, Miss Ann Videtta, office manager. The company employs ten men and hires several trucks.

— New England Sand and Gravel Company —

The New England Sand and Gravel Company of Framingham, Mass., owned and operated by Frank Generazio, has been in business in the area for the past 25 years. The present 100-acre pit has been operated by the company since 1938 and it is estimated that 1½ million tons of sand and gravel have been taken out during that time. In addition to the sand and gravel business the New England Sand and Gravel Company does some general contracting work and road-building for towns in the area. One of the recent contracting jobs undertaken by the company was the construction of an airport at Manchester, N. H., involving 48,000 cu. yds. of

(Continued on page 395)

• Above: Northwest ¾-cu. yd. shovel loading truck in pit. Left: Frank Generazio, owner of New England Sand and Gravel Co. Below: Generazio's Bucyrus-Erie ¾-cu. yd. dragshovel excavating for fuel oil tank for greenhouse in Wayland, Mass. This machine also has shovel front end for use in gravel pit.

• Above: New England Sand & Gravel Co. 1200-ton per eight hour day capacity preparation plant in 100-acre pit near Framingham. Below: Company's concrete plant includes 120-ton batcher bin.

Mechanical Refrigeration

• Six miles of pipe were sunk into a sliding mass of earth and quicksand at Grand Coulee Dam to freeze the moving mass before it could threaten the entire project.

Refrigeration industry develops equipment to meet many problems of the construction engineer, among the more prominent of which are methods for stopping slides, cooling concrete masses, and treating tools.

WHEN A mountain starts moving, it takes more than faith to stop it. Mechanical refrigeration, however, is one force which has the power literally to "freeze" a wandering mountain in its tracks.

Landslides, shifting mud, quicksand and other excavating hazards no longer are problems for construction engineers because of equipment developed by the refrigeration industry which can turn a sliding mass of mud or earth into a solid, unmoving object.

At Grand Coulee Dam, for example, mechanical refrigeration saved the whole project from disaster when a huge landslide refused to be checked by ordinary methods. Engineers met the problem by sinking six miles of pipe into the mountain of moving earth and freezing the mass solid with a refrigerant circulated through the pipes.

The use of mechanical refrigeration to halt landslides, however, is only one phase of the refrigeration industry's contribution to the field of construction, according to the Refrigeration Equipment Manufacturers Association.

The bugaboo of cracking in concrete in heavy foundations, dams and other projects where concrete is used in mass form, can be eliminated through the use of mechanical refrigeration to control the cooling temperature of the concrete.

As every construction man knows, concrete generates heat as it hardens which naturally causes

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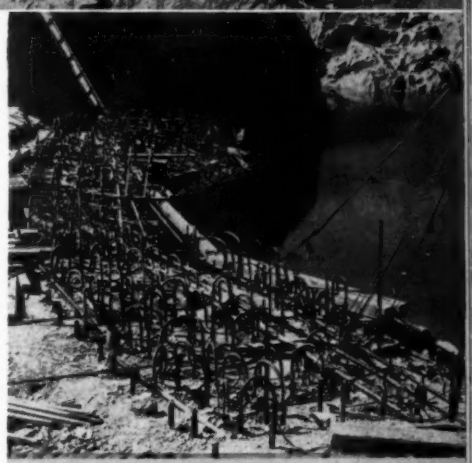
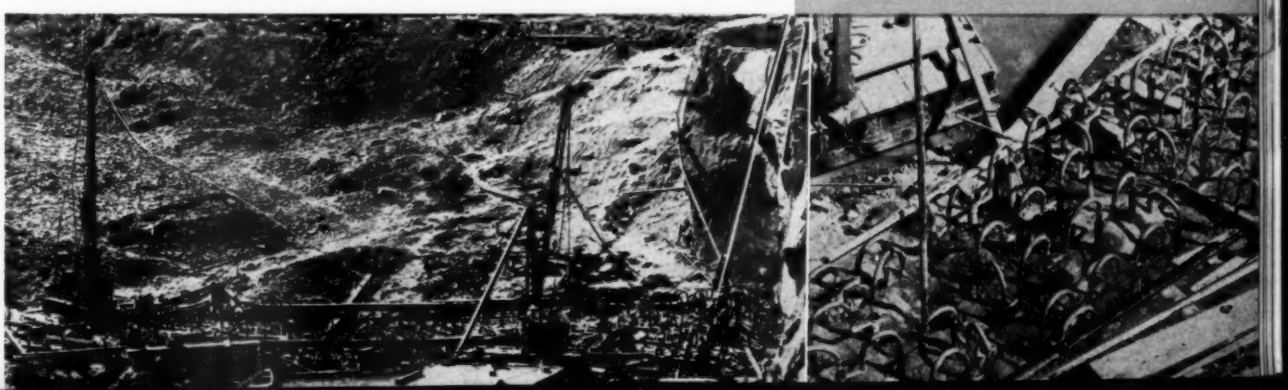


• Above: Detailed view of the freezing pipes used at Grand Coulee to halt a threatening landslide. The three-inch pipes are spaced three feet apart and were driven 45 ft. into the ground. Below: Three-inch pipe, in left foreground, being driven into a mass of soft moving earth. All pipes are connected for continuous flow of frigerant solution. Below, left: Equipment used to drive pipes into earth.



• Left: General view of sand-sucker Joseph Scobell showing Bucyrus-Erie 1½-cu. yd. clamshell mounted on deck tracks, arrangement of cargo holds, and pump room. Above: Chief Engineer Howard Gerken, left, and Captain Fred Mastine. One of the 62-inch troughs that carries material to the cargo-holds is in the background. This trough is moved into position on rails.

Clamshell with 1½ cu. yd. bucket on 40-ft. boom is permanent installation on Erie Sand and Gravel Company's sand-sucker, "Joseph Scobell" for unloading this ship.

By MERLE MARTS

Sea-going Clamshell

THE ERIE SAND AND GRAVEL Company of Erie, Pa., has an unusual adaptation for a clamshell. A Bucyrus-Erie 37-B with a 40-ft. boom and a 1½ cu. yd. bucket is a permanent installation on the company's sand-sucker, "Joseph Scobell" for unloading the boat.

The excavating machine is mounted on the deck of the boat on a special truck designed and built by the owners. Steel rails were laid parallel on each side of two 20 ft. wide and 60 ft. long cargo hold openings. The clamshell's special truck operates on these rails, propelled by the use of two deck winches, one mounted forward and the other aft. A three-part tackle is used between each of the winches and the truck. The clamshell engine is not used for propelling.

When the ship is underway the clamshell is nestled on the after end of its runway against the deck house, the boom in a horizontal position. In this position the machine appears to be part of the ship and is hardly noticeable.

The Joseph Scobell has a double bottom steel hull 300′-0″ x 40′-0″ x 22′-0″. The ship has a reciprocating triple expansion main engine which drives it at 11.5 miles per hour when light and 10.5 m.p.h. when loaded. A load changes the ship's draft 12.5 feet. There are two Scotch Marine boilers fired by Todd Oil Burners in the boiler room. A Sperry Gyro Compass gives true directions at all times without deviation or variation. Communication between the Erie Sand and Gravel Co. office and the Joseph Scobell is by radio telephone.

There are 29 men in the crew of the sand-sucker which operates

principally in Lake Erie and the rivers emptying into this lake between Detroit and Buffalo. Captain Fred Mastine is master of the ship and Howard Gerken is chief engineer.

Sand is pumped on board by two twin 12" x 12" Bates steam engines driving two 16-inch American Manganese Amsco pumps which pump the material into the two 24 ft. deep and 60 ft. long holds with average widths of 20 ft. The holds are considerably wider at the bottom than at the top so that 70% of the ship's load is below her center of gravity. The pumps load the ship to its 1850 cu. yd. capacity in an average of 3.5 hours.

The material is graded on board by use of the Hydraulic Screen Trough, a system patented by the Erie Sand and Gravel Co. The pumps discharge over two 62-ft. long double deck construction troughs over the cargo hold. This permits the fines to drop through a given screen area and the oversize to continue down the upper trough to a sluiceway in the ship's side, which deposits this excess undesirable material back into the lake or river. The fines are again processed after going into the lower trough by then passing over settling boxes which release the material into the cargo hold through 1½-inch openings. There are approximately four openings to each settling box. As this is being accomplished in the settling box, the material is 90% dewatered, a suitable gradation for the finished product.

After the loaded ship arrives

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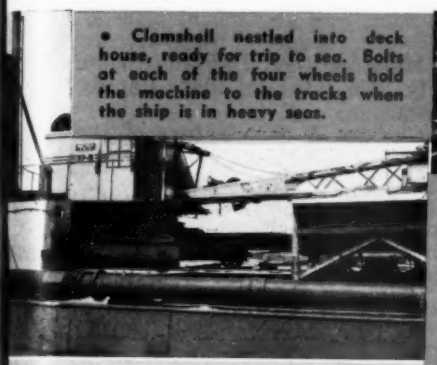
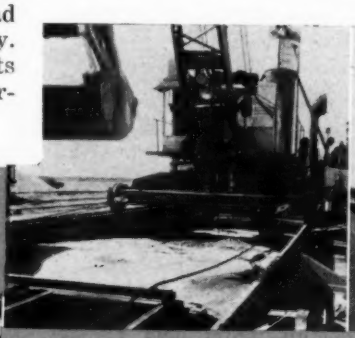


• Clamshell nestled into deck house, ready for trip to sea. Bolts at each of the four wheels hold the machine to the tracks when the ship is in heavy seas.



• 1. Special truck on rails spans 20-ft. cargo hold openings. Cables through snatch block on truck lead to forward deck winch. There is a similar arrangement aft. Opening in foreground leads to pump room between two cargo holds.

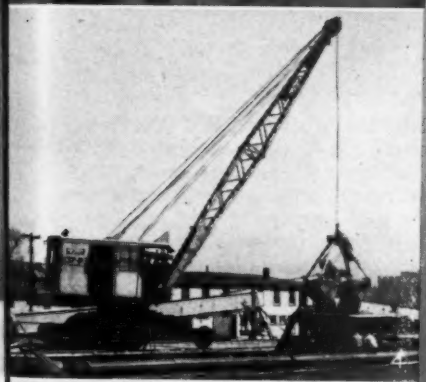
2. Boom conveyor discharges material to stockpile from starboard side of ship.

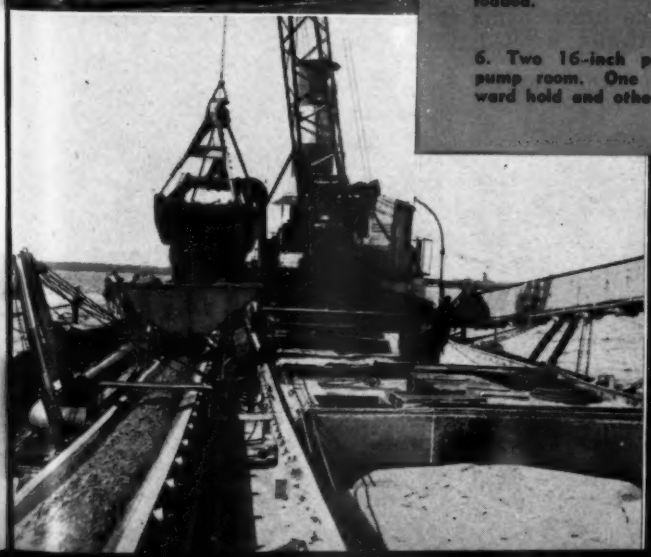
3. View from operator's position on 37-B showing movable hopper over the deck conveyor belt which carries the material forward to point where it is discharged onto the boom conveyor belt.

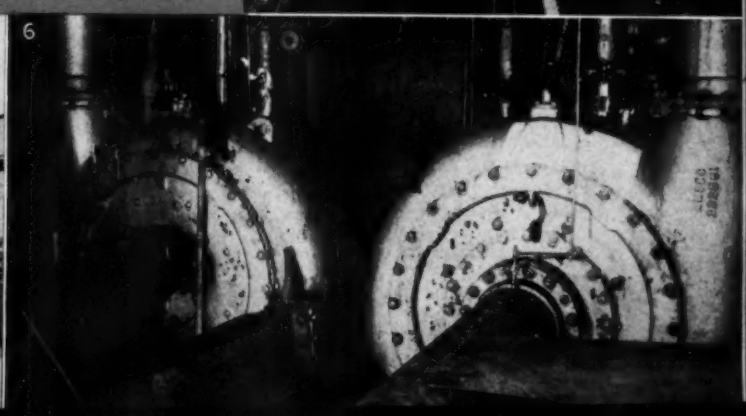
4. With the short 40-ft. boom and a short swing a large bucket can be used even though the sand is wet and heavy.

5. With its short swing between hold and hopper, clamshell keeps deck belt loaded.

6. Two 16-inch pumps in interior of pump room. One discharges into forward hold and other into after hold.







Equipment you ought to KNOW ABOUT

Portable Convoy Luber

Manufacturer: Gray Company, Minneapolis, Minn.

Claims: A complete service station on wheels, lacking only gas pumps. Mounted on a truck or trailer the outfit brings high pressure lubrication and related services out to the job where equipment is operating. It is completely self-contained, with lubricant tanks, hose reels, compression pumps, tools, and accessories built in.

One of the features of the Convoy Luber is its Onan OTC-2 electric generating plant, mounted on the air compressor tank, which in addition to furnishing current for lights and battery charging, serves as a prime mover for the air compressor. The plant generates 115 volts, 60 cycle, single phase, 1500 watts A.C. current. The engine is a two-cylinder, air cooled, gasoline driven prime mover that develops 3.1 h.p. at 1800 r.p.m. A separate D.C. circuit connected to the exciter winding provides the current for battery charging.

Dual Drum Paver

Manufacturer: Foote Co., Inc., Nunda, N. Y.

Claims: A 34-E dual-drum paver which incorporates a number of new features in a paver of this size. Fully automatic control cuts to a minimum charging, transfer, and discharging time.

The MultiFoote Duomix traveling mechanism is driven from the single main shaft, which also provides power for the drums and skip hoist. Drive gears are fully enclosed and run in oil. There are two speeds forward and one reverse. A new type of tread plate is used on the crawler which is of such construction that it is impossible for stones to lodge in the joints between treads to cause "nutcracker" action. In addition, drive lugs on the treads are on alternate sides of adjacent treads, providing a clean, smooth path that conforms to the arc of the roller with a ball-and-socket action that distributes the bearing pressure evenly, regardless of ground conditions.

For further details about the equipment on these pages please write to the manufacturer, mentioning Excavating Engineer.

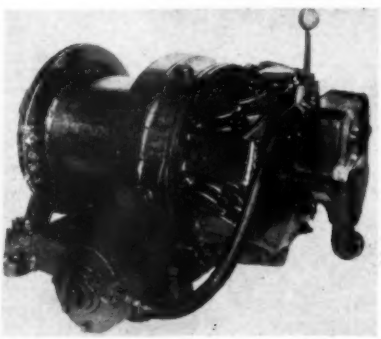
Transfer and discharge chutes are rotary type, requiring only a quarter turn from completely shut to wide open positions. Drums are both of the MultiFoote Double-Cone design which has proved highly satisfactory on single-drum MultiFoote 27-Es and 34-Es. Unusually smooth operation is attributed to careful weight distribution and balanced overall design.

The original pilot model of the MultiFoote Duomix 34-E laid approximately 45,000 cu. yds. of concrete in its first test without time out for repairs, or for alterations in the original design.

Safety Hoist

Manufacturer: Gardner-Denver Co., Quincy, Ill.

Claims: Safety feature on hoist for use with timber, steel, powder and other supplies consist of a spring-loaded brake, which is held in the off-position by air pressure. If the air supply fails, an air hose ruptures, or a line breaks, this brake is automatically applied.



The brake is automatically released when the throttle valve is moved in either direction, and the throttle valve will automatically return to the neutral position when released by the operator.

This new brake, available on the Gardner-Denver Model HKK Hoist, is positive and entirely automatic. It will hold in suspension any load within the capacity of the hoist and cannot be released until air is admitted to the motor and the load is picked up.

New Scrapers

Manufacturer: LaPlant-Choate Mfg. Co., Inc., Cedar Rapids, Iowa.

Claims: A new feature of the 8½-cu. yd. (11 cu. yds. heaped) Model C-108 scraper is a floating apron. The apron opens 30" before the rear gate moves, permitting the adjustment of the apron to any position before loading.

Also, the apron clears the load completely as the rear gate starts to move forward, thus preventing any compaction of load between gate and apron.

The open top bowl, free of overhead obstructions, permits loading by shovel, dragline, or elevating grader and the high lift of the apron enables the scraper to discharge any type of material from the bowl, including rock or sticky gumbo.

The scraper is the front-dumping forced ejection type, designed to facilitate spreading, which is possible from ½" to 18". Cam action on the bowl lift cable enables the bowl to be raised or lowered quickly.

Hauling characteristics of the scraper include ground clearance of 14" and arrangement of the cam action on the bowl lift so that cable is closer to center of axle on sheaves, thus requiring less braking power at the power control unit.

The length of this 8½-cu. yd. scraper is 27′3″, width 10′5″ and height, 7′8″. It weighs 14,500 lbs.

The small 2-cu. yd. front dump Model CW-2 scraper is an improved industrial counterpart of the wartime air-borne scraper. It weighs only 2,550 lbs.

The two rear wheels can be located either inside or outside the cut and it can make a full 90° turn or less within a circle diameter of 20 ft. The hitch is designed for operation behind high speed rubber-tired industrial tractors. When fully loaded, weight is lifted from the tractor's front wheels and much of the load weight is centered on the tractor's driving wheels for maximum traction.

Bowl and apron are operated hydraulically. A three-position valve enables the cutting edge to be held in position and exert effective down pressure.

Other operating features include ability to make cuts up to 11½″ and to produce smooth finished work. Due to low center of gravity the scraper will not roll over any slope that will hold the tractor. The bowl clearance and short wheel base allows its use on soft fills or rough terrain.

Rubber-tired Trailer

Manufacturer: Athey Products Corporation, 5631 W. 65th St., Chicago, Ill.

Claims: This new rubber-tired unit, known as the PD-10 Trailer, is a two-way dump unit designed for use with Caterpillar DW-10 tractor for high-speed hauling on construction, mining and other earthmoving projects.

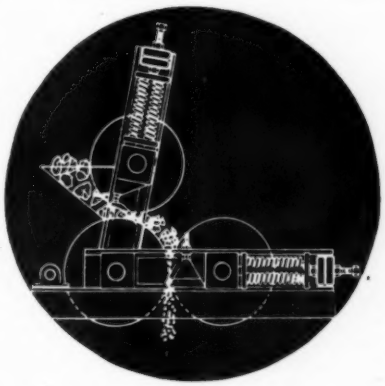
The PD-10 heavy-duty trailer has a maximum capacity of 15 tons and has an approximate shipping weight of 15,000 lbs. It is hydraulically operated and has

a heaped capacity of 10 cu. yds. and truck capacity of 8 cu. yds. The trailer is 21′ long, 9′4″ wide, 7′2″ high at rear, and 7′10″ high in front. It discharges its load from either side at a 55° angle. The unit is mounted on 14.00x20, 16 ply tires.

Triple Roll Crusher

Manufacturer: Pioneer Engineering Works, 1515 Central Ave., Minneapolis 13, Minn.

Claims: A new design of roll crusher employing three rolls equipped with manganese steel shells. The extra roll is mounted over the stationary roll in such position that the rock is fed into the opening between the top roll and the stationary roll and then



passes between the stationary roll and the horizontal floating roll. The Triple Roll actually does the work of two crushers.

For those who have Pioneer Roll Crushers, the third roll assembly can be shipped from the factory complete with all attachments. The Triple Roll Crusher is available at present in two sizes—54″ x 24″ and 40″ x 22″.

Pioneer states that one Triple Roll Crusher has been in actual operation for over three years—and the owner has ordered his second such crusher.

Segregation Eliminator

Manufacturer: Blaw-Knox Company, Pittsburgh, Pa.

Claims: This device was originally developed to prevent the tendency of coarse aggregates to segregate as they are discharged from overhead storage bins. The eliminator is simple and inexpensive, and can be installed in each of the coarse aggregate compartments of the overhead storage bin. It is adjustable in its operation and automatic in its functioning.

Coarse aggregates, such as slag, gravel, and crushed stone, undergo segregation as they are deposited in overhead storage bins, from clamshell buckets, conveyors, screens, and the like. The segregation eliminator corrects whatever segregation takes place while the bins are being filled, and delivers a uniformly graded aggregate from the discharge gate at the bottom of the bin compartment.

The multiple compartment storage bins for central mixing plants, truck mixer loading plants and batching plants for road or bridge work made by Blaw-Knox will include provisions for the installation of the segregation eliminator in the coarse aggregate compartments of the storage bin, when required or specified.

'Minit' Lubricator

Manufacturer: Balcrank, Inc., Cincinnati 9, Ohio.

Claims: Lubricator possesses a "Padl-Pak" Tamping Blade, which eliminates air pockets without the use of bleeder valves and paddles and packs the grease as it pumps, assuring delivery of uncontaminated lubricant into the fitting at all times and in all weathers. The 30-pound capacity takes a full 25-pound can of grease and pumps the container empty without a sputter. The "Jiffy Change" Adapter, with a universal swivel as an integral part of the hose line, permits adapter change in seconds for button-head, hydraulic or pin-type fittings.

Stainless Steel Electrodes

Manufacturer: The Lincoln Electric Company, Cleveland, Ohio.

Claims: "Stainweld A 7" and "Stainweld A 7-Cb" are improved electrodes for shielded arc welding of stainless steels of the 18 per cent chromium and eight per cent nickel type in all positions. "Stainweld A 7" is recommended for use with stainless steels designated by American Iron and Steel Institute as numbers 304 and 308. It produces an extremely smooth and steady arc with easy slag removal and is suited for operation on direct current or the higher voltage type alternation current welding units and is available in 1/16, 5/64, and 3/32-inch sizes, 18-inch lengths, center grip and ⅛, 5/32 and 3/16-inch sizes, 14-inch lengths, end grip.

"Stainweld A 7-Cb" is columbium stabilized and has operating characteristics similar to "Stainweld A 7." This electrode is recommended for use with stabilized 18-8 stainless steels designated by American Iron and Steel Institute numbers 321 and 347 and is furnished in 3/32-inch size; 18-inch

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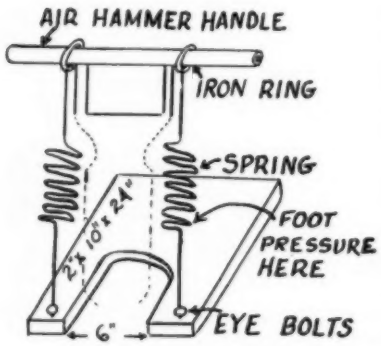
Field NOTES

Air Hammer Footboard

An ingenious device for enabling drill runners to perform their jarring work with less fatigue can be very quickly made from a board, springs, and two iron rings.

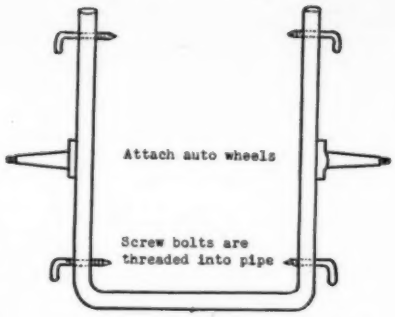


• Foot pressure applied to board allows springs to absorb jars.

Instead of riding the air hammer with the weight of his body on his arms so that the body absorbs the heavy vibrations, the worker applies pressure to the board with his foot and the springs absorb the vibration. The construction of the board can be easily seen by the accompanying diagram.

Carry-all Cart

A handy gadget for carting around barrels of oil, tar, or other materials can be made rather quickly to save you time and trouble of wrestling with a heavy barrel while transporting it from place to place. Take a 1¼-inch pipe and bend it into a U-shape so that the distance between the arms is equal to the diameter of a steel drum. Then thread a pointed screw bolt near each end of the pipe arm at a distance less than the length of a barrel (the pipe on each side extending back from the second pair of bolts will act as handles for the car). Midway between the two bolt holes on the outside of each arm attach a spindle to use as an axle for wheels which may be discarded auto wheels, or any other kind that you find suitable. To operate



• Bent pipe makes novel frame for truck to be used in transporting barrels.

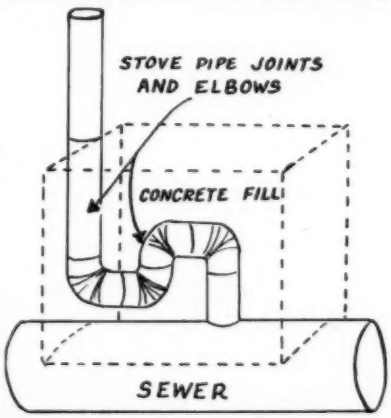
the cart, roll it up to a barrel, tip the barrel a little, push the truck under the barrel and tighten the pointed screws. The barrel is now ready to be moved.

• Operator Anton Holman of Butler Brothers, Cooley, Minn., won a $100 award with his suggestion to the company to have guards attached to bulldozer arms to prevent rocks and other material getting between the standards and tracks. The steel plate guards were welded to 'dozer arms to act as baffle plast to cast rocks away from the mechanism.

Reprint from The Butler Miner

Contractor's Quick Sewer Hook-up

The following time-saver can be used when you are called upon to hook up toilets for your men to the city sewer main and there are no traps to be had. First, secure stove pipe joints and elbows to use as forms and then dig a hole down to the main and cut an opening. Insert the pipe in position and fill the hole full of concrete. As soon as the toilet connections are made,



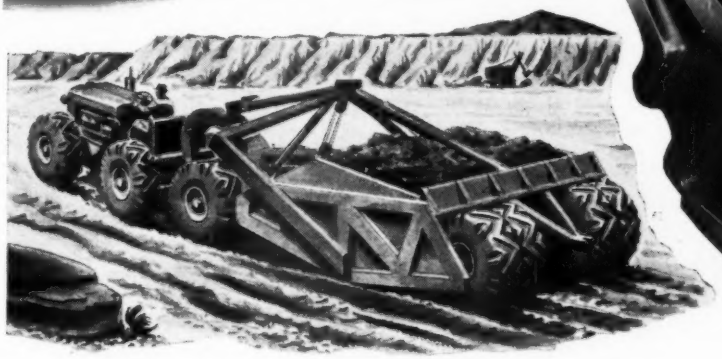
• Stove pipe is used to take place of traps in installing quick drainage system.

the toilet facilities may be used as the stove pipe will prevent the water from damaging the cement until it is set.

Motor Manifold Hook-up

A tricky hook-up that contractors and well drillers find saves them labor and time is the set of connections that make possible the use of the vacuum created in the truck motor manifold to lift water. Where tanks must be filled

THE GENERAL DEEP CLEAT



The Quality-Built Contractor's Tire that Makes Payloads Pay!

Like a boxer "rolls" with the blow . . . General's Shock-Absorber construction *absorbs* the shocks and impacts of punishing service . . . avoids the service damages that commonly cause tire failures.

This exclusive construction principle of General Off-the-Road Tires *distributes* shock loads and stresses uniformly throughout the tire carcass . . . stops damaging concentrations . . . offsets the common causes of bruising . . . snagging . . . tearing and blow-outs.

Built throughout to General's famous Top Quality, General's shock-absorber constructed Off-the-Road Tires provide a new standard of long, continuous service and economy to heavy contractors.

ROCK SPECIAL

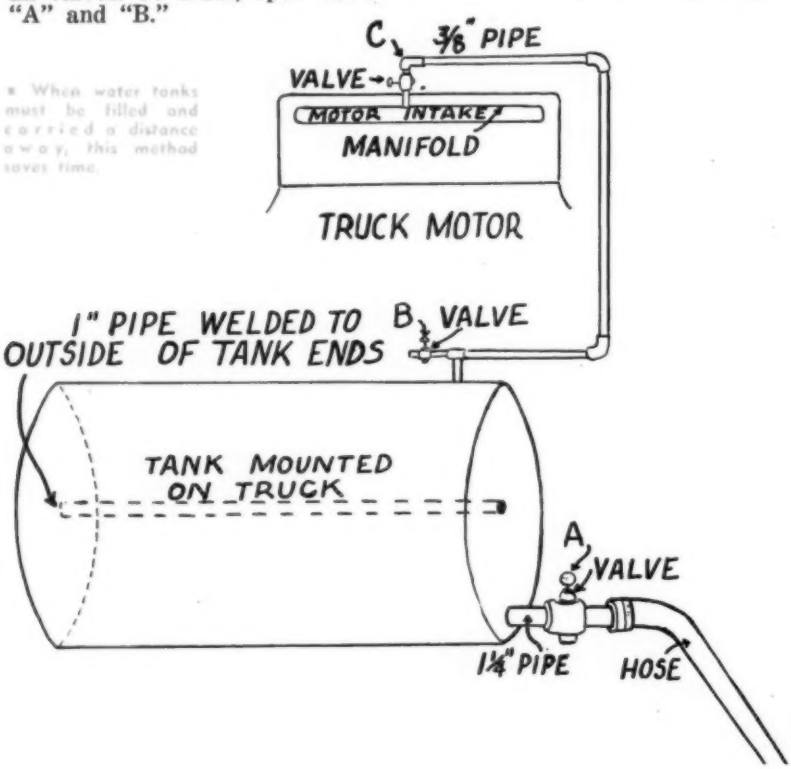
The GENERAL TIRE

THE GENERAL TIRE & RUBBER CO. • AKRON, OHIO

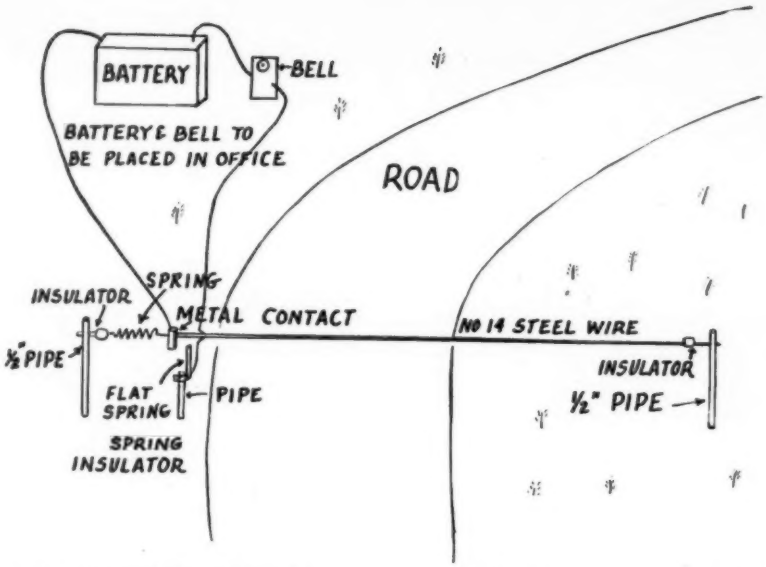
by hand pumping or where a job calls for the removal of seep water from trenches, cellars, etc., the illustrated hook-up more than pays for itself.

The tank or tanks to be used are reinforced with a section of one-inch pipe that runs through the center of the tank and protrudes enough through the outside of each tank end so that the pipe can be carefully welded to the tank end. This will prevent the tank ends from collapsing. Two further pipe connections must also be welded on the tank. The first is the water intake pipe opening with cut-off valve ("A") located at the bottom of one tank end and the other is the vacuum pipe connection with cut-off valve ("B") perpendicular to the water pipe and located a few inches down from the rim on the side of the tank. The other end of the vacuum pipe is equipped with a valve connection ("C") at that end which will fit into an opening made in the motor intake of the manifold.

The vacuum pipe connection can be made out of ⅜-inch pipe and the water intake made from 1¼-inch pipe. To operate, attach the hose to intake pipe and place other end into the water. Then open valve "A" and "C" and close "B." Start running the motor slowly and when tank is full, close all valves. To drain, open valves "A" and "B."



* When water tanks must be filled and carried a distance away, this method saves time.



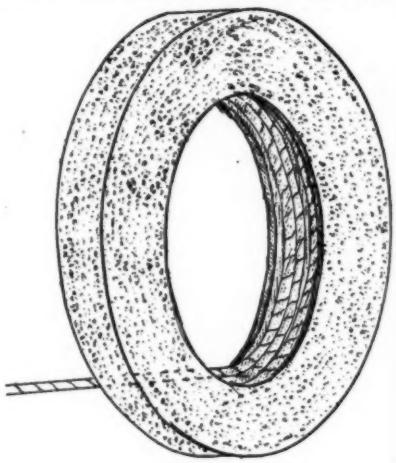
* Wheels push wire down and draw contacts together.

Truck and Car Checker

A simple arrangement for the office to check incoming and outgoing vehicles without employing the aid of a human checker is the electric bell system that can be very quickly set up. Across the roadway at about four inches off the ground is stretched a wire (No. 14 Steel) grounded on one side to a half-inch pipe and on the other end attached to a metal contact connected to a grounded spring. Opposite the contact is a flat spring on a grounded pipe. A wire leads from the flat spring to the bell, installed in the office, which is in turn connected to a storage battery. A wire from the other battery pole to the metal contact completes the circuit and every time a vehicle crosses the wire in the roadway pulling the contact against the flat spring, the bell rings in the office.

Wire Rope Storage Kink

Wire rope can be easily coiled inside an old truck tire. One man can generally coil the rope in the tire if it is of small diameter, but two men would be needed for larger diameter rope. This storage method also provides an easy way

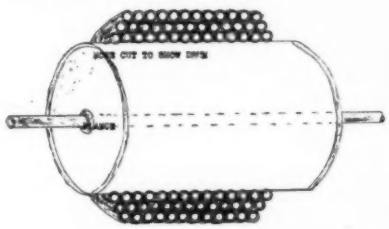


* An old truck tire makes a handy storage place for wire rope.

to lubricate the rope. Oil may be poured inside the tire and by revolving the tire slowly the entire cable will be lubricated. The tire also provides an easy method for uncoiling the rope.

Storage Rack for Hose

An old oil drum can be used as a convenient water or air hose storage reel. Weld a pipe flange at the center of each end of the drum and cut out a hole through the flange for a pipe axle. The ends of the pipe axle can be supported on horses or racks.



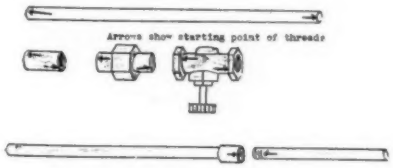
• Cut-away section of coiled hose shows construction of storage reel from old oil drum.

The process of putting the hose on the reel drains the hose. Since the reel is large in diameter, the hose will not crack or become flat as might happen through the method of storing by coiling on the floor.

Marking Pipe Threads

Much time and labor may be saved in laying pipe if the starting point of the threads in the pipe and connections are marked with an arrow by using a small cold chisel and filling the cut with red lead. By following the marks on the pipe and connections, the joints are made without the usual delay caused by turning the pipe or connection as in other methods.

The marks can be placed on pipe



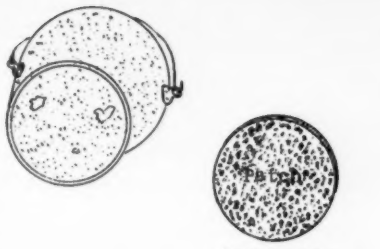
• Arrows cold chiseled into pipe show starting point of threads.

and connections when they are reconditioned for service. Loose threads are usually designated by an "X" at the base of the arrow and those hooking up the pipe then know that more compound is needed in the joint.

Repairing Pails

A pail, tank, or other container with leaks can be made serviceable by trimming a piece of composition roofing to fit the inside of the bottom and cementing it in place with roof cement. Coat well the bottom of container and also the roofing patch with cement. Put patch in place and weigh down with sand or dirt until cement sets.

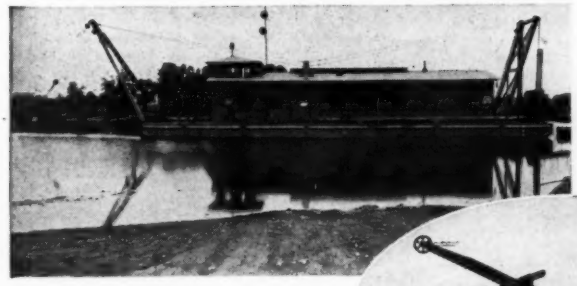
William P. Houser.



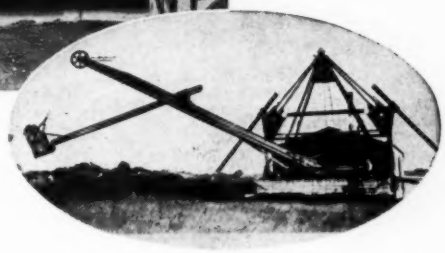
• Composition roofing cemented inside the bottom of a pail makes a handy patch.

Complete Dredges

HYDRAULIC • DIPPER • CLAMSHELL



HYDRAULIC DREDGES
Sizes 8" to 15"



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¾ cu. yd. up

BOLTED SECTIONAL STEEL CONSTRUCTION

Every ASD dredge is designed as a complete, integrated unit for economical performance. Backed by 40 years of dredge building experience, these units are cutting yardage costs on many different projects—canals, harbors, channel improvements, drainage, sand, gravel, fills, ore recovery and other jobs.

Patented, bolted sectional steel hulls, all machinery and accessories are shipped by rail, truck or as hold cargo for assembly at site of use. May be dismantled, shipped and reassembled at remote inland locations.

Write for catalog, photos and data sheets.

Place your order NOW for early delivery.

AMERICAN STEEL DREDGE CO. INC.
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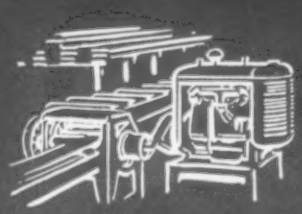
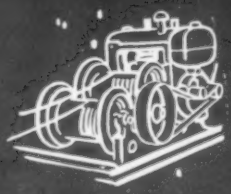


SAWMILLS

ROCK CRUSHERS

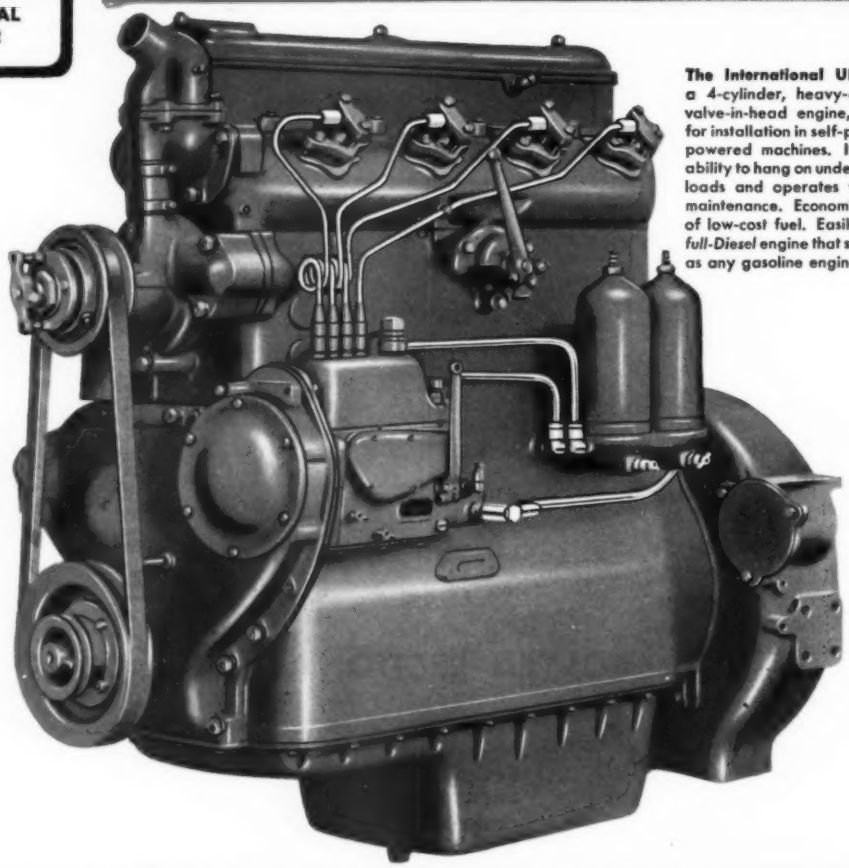


HOISTS

POWER SHOVELS

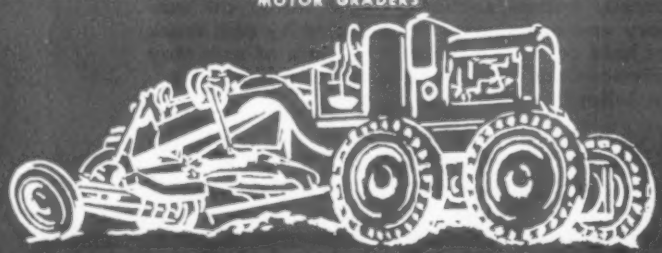
INTERNATIONAL HARVESTER

INTERNATIONAL

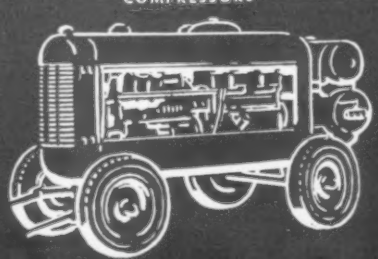


The International UD-14 Diesel, a 4-cylinder, heavy-duty, 4-cycle valve-in-head engine, as supplied for installation in self-propelled and powered machines. It has unusual ability to hang on under heavy overloads and operates with minimum maintenance. Economical in its use of low-cost fuel. Easily serviced. A *full-Diesel* engine that starts as easily as any gasoline engine of like size.

MOTOR GRADERS



COMPRESSORS

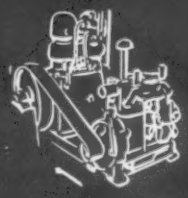


On Highways, Railways and Waterways

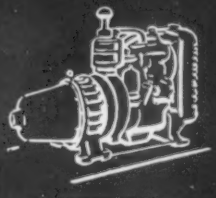
International Industrial Power

MARINE

PUMPS



ICE MACHINES



GENERATORS

DIESEL ENGINES

for Full-Diesel Economy

If it's powered by an International Diesel Engine you have assurance of *full-Diesel* performance and matchless operating economy in the powered equipment you buy. With it you get more work accomplished per dollar of cost for fuel and maintenance.

International Diesels are smooth-running, 4-cycle, *full-Diesel* engines. Advanced design fuel injection and combustion assures full use of the fuel consumed. And International's positive, instant starting system makes any International Diesel as easy to put to work as any gasoline engine of like size and horsepower. That means no excess weight, no wasted time, no hesitation when you want power on the job!

There are many features that give International Diesel engines long life with minimum maintenance. *Tocco-hardened crankshafts; valve-in-head design; replaceable, long-life cylinders of heat-treated alloy steel; full-pressure lubrication through rifle-drilled passages; heavy-duty precision bearings of replaceable type; full-floating piston pins; full-floating water pump shaft; by-pass type thermostatically-controlled cooling; large-capacity air, oil and fuel filters; etc.* Only International Diesels have all these features!

Any powered equipment is, therefore, better equipment because of the dependable International Diesel Engine that powers it. Visit any distributor who handles International-powered equipment for further facts and help in selecting the equipment you need. For International Diesel Crawler Tractors, Wheel Tractors or Power Units, see your nearest International Industrial Power Distributor.

Industrial Power Division

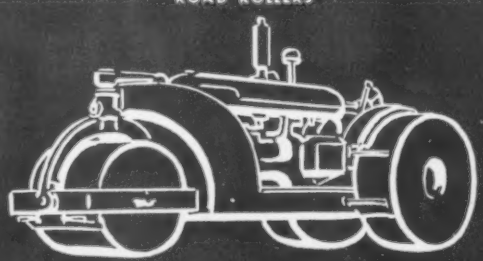
INTERNATIONAL HARVESTER COMPANY

180 North Michigan Avenue Chicago 1, Illinois

INTERNATIONAL Industrial Power

DITCH DIGGERS

ROAD ROLLERS



. . . In Cities, Forests, Mines and Factories

. . . Makes the Tough Jobs Pay

Shots from the FIRING LINE

State Highway Awards Increase Reported by PRA

A large increase in the number of contracts awarded by State highway departments in April for work on Federal-aid projects, as compared with contract awards in each of the three preceding months, was reported by the Public Roads Administration of the Federal Works Agency.

During April the State highway departments let 392 contracts for Federal-aid road work that will cost $55,932,506, according to reports received by Public Roads from its field offices. This was only slightly less than the total of 413 contracts awarded during the first three months of the year at a cost of $71,803,075. Contract awards from January through April totaled 805, and the total construction cost was $127,735,581. Seventy-eight contract awards for work to cost $14,729,085 were pending on April 30.

Since January 1 State highway departments have rejected 201 bids for Federal-aid road work because the low bid was far above the estimated cost of construction, or for other reasons, without action by the Public Roads Administration. In the same period 36 bids were rejected as a result of Public Roads' refusal to concur in the award of contracts. The refusal of concurrence was prompted by high bidding.

From January 1 through April 30 the number of contracts awarded for all types of highway work under State or Federal supervision, including Federal projects, Federal-aid projects and State-supervised road work financed entirely by State or local government agencies, amounted to 2,299. These contracts were for improvements on 10,217 miles of roadway, at a total cost of $173,037,391.

Missouri Basin Project Started at Kortes Dam

Men and machines started work on the biggest and most challenging river-taming and resource-developing job ever undertaken in the United States on May 15. Ground was broken for the construction of the Kortes Dam and Power Plant, two miles below the Seminoe Dam on the North Platte River, about 60 miles southwest of Casper, Wyoming.

This marks the beginning of construction, by the Bureau of Reclamation, under the $2,000,000,000 Missouri River Basin Plan, under which the Bureau and the Corps of Engineers, United States Army, have set out to subdue the destructive force of the Mighty Missouri and turn its water and power to the creation of benefits for the people. These benefits have been estimated to aggregate $175,000,000 per year in value.

The Missouri River Basin covers a ten-state area 1,300 miles long and 700 miles wide, embracing one-sixth of our land and 7,000,000 of our people.

The Plan

To control this river and its tributaries, and turn it from destruction of life and property to the creation of wealth and stability in the "dust bowl" the Congress, in 1944, approved the Missouri River Basin Plan.

This plan calls for the construction of:

1. More than 100 new dams to create reservoirs to hold back the floods of the river and its tributaries, and permit the water to be released as it is needed for irrigating farm lands, producing power, and preserving stable navigation. These reservoirs will hold more water than flows out of the mouth of the Missouri River in an entire year.
2. Approximately 150 irrigation projects, embracing thousands of miles of canals and other facilities, that will carry the water to drought stricken farm lands, and deliver it for other uses.
3. More than 20 power plants, and the thousands of miles of power transmission lines, and other facilities, necessary to provide the low-cost energy which is essential to the success of the plan.
4. Safe water supply systems for at least 19 communities.
5. Hundreds of miles of flood-control levies and dykes.
6. Approximately 760 miles of uniform river channels for the promotion of low-cost navigation.

The cost of the construction under this plan will approach $2,000,000,000, and the work will take years to complete.

The Benefits

The financial benefits that will accrue from this investment will repay it many times, engineering studies show. The direct benefits have been estimated at an average of over $175,000,000 per year, allocated as follows:

Irrigation	$130,000,000
Power	21,803,000
Flood Control	18,500,000
Navigation	4,650,000
Municipal Water	500,000
Total	$175,453,000

The preservation of life and the social benefits cannot be measured in terms of money, but they will be tremendous.

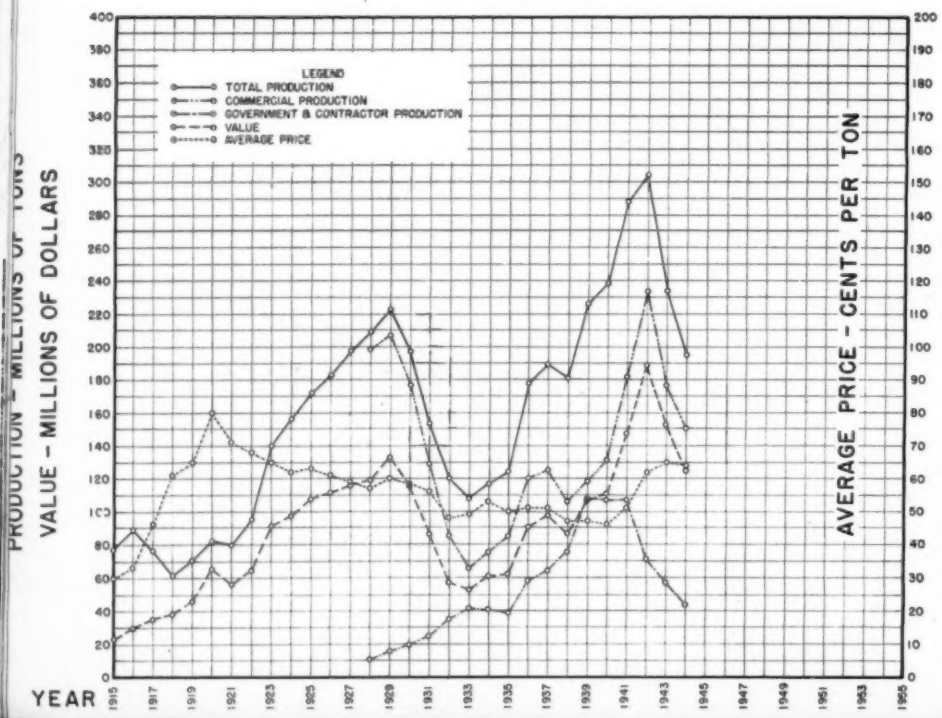
And, the great, stable buying power of the people of the Missouri River Valley, which will arise from this program will create valuable markets for industry, jobs for labor, and opportunities for business and professional men and women.

Ohio to Vote on Diversion Measure this Fall

Preparations are going forward in Ohio for submission to the voters at the November election of a proposed state constitutional amendment to restrict use of all state gasoline taxes and

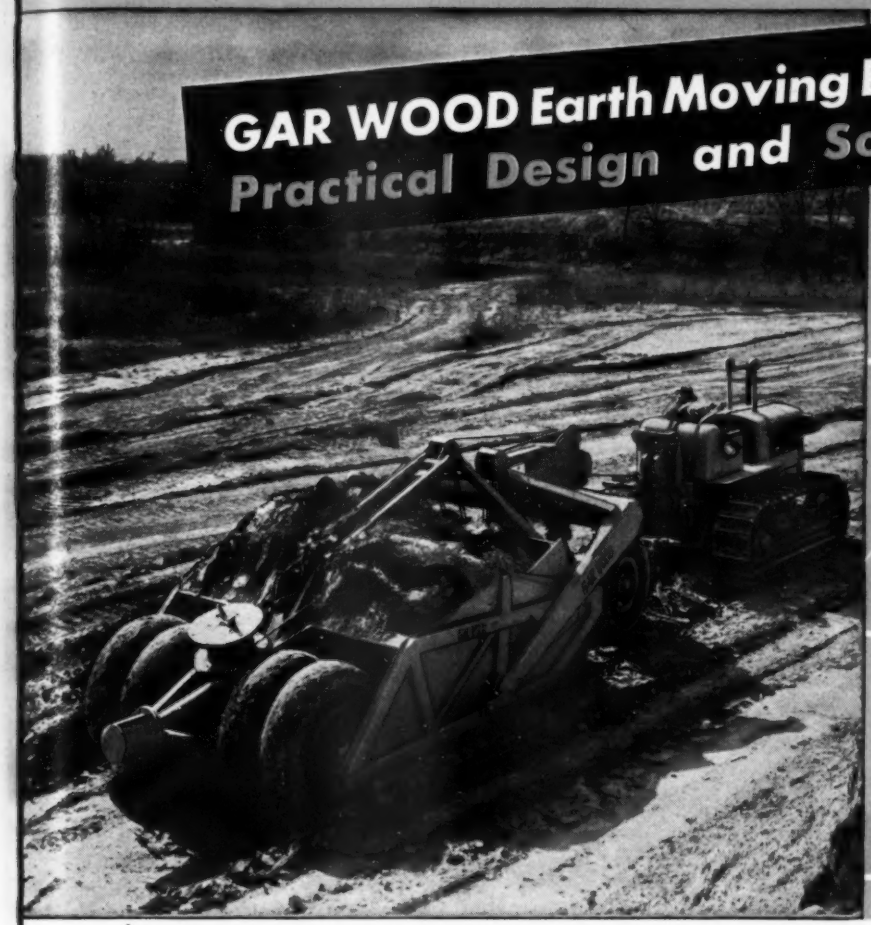
PRODUCTION AND VALUE OF SAND AND GRAVEL

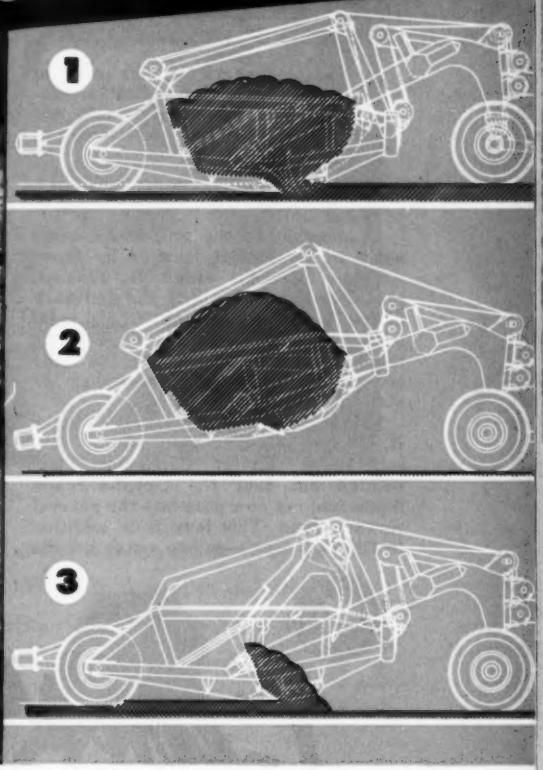
DATA OBTAINED FROM REPORTS OF U.S. BUREAU OF MINES



Down-to-Earth Engineering

GAR WOOD Earth Moving Equipment Features
Practical Design and Sound Construction

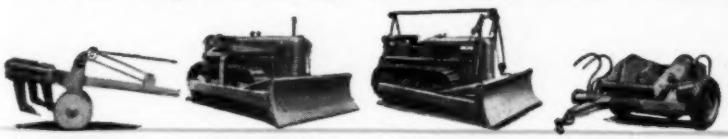




GAR WOOD 4-Wheel Cable Scrapers are *all scraper*, well engineered, honestly built of high quality materials, developed and proved over a period of many years—scrapers that *hold together* and get big yardage jobs done at consistently good speed with an absolute minimum of down time. Some of the many outstanding engineering features, as well as the rugged simplicity of the mechanism, are shown in the three drawings above:

1. LOADING: The self-loading is by positive digging to depths down to 12". "Boiling" action of dirt loads bowl and patented apron evenly by reason of proper angle of the cutting edge. Positive digging action is assured in all types of materials by proper location of draft point.
2. CARRYING: This position provides extremely high clearance of cutting edge, essential in traveling over uneven ground and in discharging sticky materials. Proper weight distribution with exceptionally low center of gravity assures stability—provides for maximum tire life.
3. DUMPING AND SPREADING: The first portion of the load dumps automatically when the apron is raised. The remainder is forced out by *positive rolling ejection.* Note extremely large apron opening to facilitate this ejection of all types of materials. Cutting edge remains stationary throughout cycle, providing for even, *accurate control* of the spread by the heavy duty *Gar Wood Cable Control Unit.*

Contact your Allis-Chalmers dealer. He will be glad to show you Gar Wood earth moving equipment and arrange for you to see on-the-job performance in your locality.



Heavy Duty Rippers | Hydraulic Dozecaster | Cable Dozecaster | 2-Wheel Hydraulic Scrapers

OTHER GAR WOOD PRODUCTS: HOISTS AND BODIES • TANKS • WINCHES AND CRANES • HEATING EQUIPMENT • MOTOR BOATS

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WITH ALLIS-CHALMERS DIESEL POWER

Sold Through
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DETROIT 11, MICHIGAN

• Mining 13,000,000 tons of copper ore in Mexico with Bucyrus-Erie 5-cu. yd. electric shovels and drilling blast holes with Bucyrus-Erie 42-T drills.

motor vehicle license fees to highway purposes only.

A summary of the proposed amendment was approved May 31 by State Attorney General Hugh S. Jenkins, preparatory to filing with the secretary of state. Petitions bearing 309,526 valid signatures must be filed 90 days before the general election to place the issue before the voters, the secretary of state's office said.

Sponsors of the proposal are Walter R. Hamer, James G. Daly and J. Russell Lloyd, all of Columbus. They pointed out that the 1-cent-a-gallon liquid fuel tax now goes into the general revenue fund. This levy is in addition to Ohio's 3-cent-a-gallon motor vehicle fuel tax, proceeds of which are earmarked for highway use.

State Tax Department officials estimated that the yield from both taxes would approximate $60,000,000 this year, about the same as immediate prewar years. On that basis the liquid fuel tax would yield some $15,000,000 in 1946.

Ohio received more than $27,000,000 in motor vehicle license fees in 1944, the latest complete year available, it was said by officials of the State Bureau of Motor Vehicles. They pointed out that 72 per cent of that total went to counties and tax districts and the rest, except for a 5 per cent equalization fee, went into the general revenue fund.

Mo. Receives $296,972,000 Over Ten-year Period

Receipts of the State of Missouri for highways during the decade 1935 through 1944 totaled $296,972,000 against total disbursements for the same period of $278,760,000.

Sources and amounts of the receipts to the State Highway Department were: motor vehicle fuel taxes, $116,741,000; motor vehicle registration fees, $97,405,000; motor carrier taxes, $6,042,000; Federal aid, $63,393,000; other Federal funds, $906,000; local funds for state highways, $731,000; local funds for local roads and streets, $27,000; bond issue, $10,205,000; miscellaneous, $1,522,000.

State Highway Department disbursements for the same period were for the following purposes: cost of collecting motor vehicle imposts, $7,929,000; state administered highways, $268,475,000—including construction and right-of-way, $120,588,000; maintenance, $48,699,000; equipment, engineering and administration, $11,846,000; police, $4,939,000; and debt service, $82,403,000; local roads and streets, $1,752,000; and to non-highway purposes, $604,000 for a total of all disbursements of $278,760,000 over the ten-year period.

These figures are calculated from data in the "Highway Facts" studies issued by the National Highway Users Conference for each state.

Trenching Machines

Trenching machines shipped from manufacturing plants amounted to 115 machines during the third quarter of 1945 and 138 units during the last quarter of the year, according to a report released by the Bureau of the Census. These quantities represent a sharp decline from the third quarter of 1944, the last previous period for which statistics are available. However, the average quarterly shipment rate of 126 machines during the last six months of 1945 represents an increase of approximately 150 percent over the quarterly rate achieved during the five-year period preceding the war, 1937-1941.

Unfilled orders for 729 trenching machines as of December 31 of last year constituted a heavy backlog of demand for this type of equipment. These orders represent an approximate 1½

General Purpose, Wide Rehandling, Heavy Duty Digging Types, ⅜ to 2½ Yard Sizes.

ALL-WELDED
ALL-MODERN

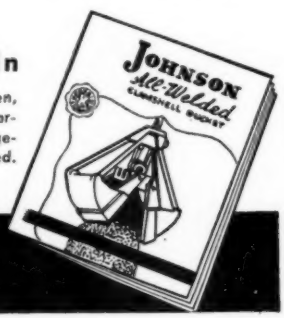
Heavier lips, sides, bottoms, plus big payloads

Johnson adds extra strength at every point of wear. Modern welded construction eliminates weight of rivets and tie plates. Just that much extra steel reinforces the lips, sides and bottoms of every Johnson All-Welded Bucket.

Heavy lips, sides and bottoms lower the center of gravity. Maximum weight close to the teeth gets maximum penetration, bigger bites. Because bucket balance is improved, Johnson Buckets hit the dirt standing up, bite in with both sets of teeth. Because obstructing bolts and rivet heads are out, their slick, smooth clams dump fast. Even sticky materials slide right out.

Get your new Bulletin

Full story on these additional advantages: Keen, hard manganese lip edges . . . needle bearings on closing sheaves . . . clams interchangeable . . . lower sheaves completely protected.



THE C. S. JOHNSON COMPANY
Koehring Subsidiary • Champaign, Illinois

years' backlog based on the fourth quarter of 1945 shipment rate and a six months' backlog even on the basis of the high shipment rate achieved during the third quarter of 1944. However, as in the case of many other types of heavy capital goods, unfilled orders during this period may be somewhat overstated due to the practice of some buyers who, in a period of short supply, duplicate their orders with more than one supplier.

The statistics given here cover all known producers of trenching machines.

Standardization of Pavers, Mixers, and Pumps

According to old records there were at least twenty different sizes of building mixers and ten different sizes of paving mixers being manufactured at the time of the first World War. Today, with effective standardization, there are eight sizes of building mixers and two sizes of pavers being manufactured, and these efficiently serve every practical present-day need. It is interesting to observe that in those earlier days a mixer larger than 28 cubic feet was a rarity. Today's standards include machines up to 4 cubic yds, and the large machines are by no means a rarity. In years past all building mixers were on steel wheels and they were side discharge. Today's mixers in the smaller sizes are end discharge, mounted on pneumatic tires, and are trailer type for the most part. In 1920 paver sizes ran from 7 cubic feet to 28 cubic feet, the smaller sizes being on four steel wheels. The 27E is today's smallest paver, and the 34E the most commonly manufactured. Both are, of course, full continuous tread, and in the 34E size there is also the two compartment drum which makes possible an increase in production of from 40% to 70%.

That is a quick picture of the concrete mixer and paver over the last quarter century from a talk by Charles S. Embrey, administrative assistant, Associated General Contractors of America, at a meeting of Region 2 of AGC in Syracuse, N. Y. in June. During almost all of that time concrete mixer standardization has been in effect.

Contractors Pump Standards

All that has been said of the advantages of concrete mixer and paver standardization is equally true of pump standardization.

This work began in 1930. The set-up is the same. The principal manufacturers of pumps are affiliated with the Associated General Contractors of America in the Contractors Pump Bureau, and the Contractors Pump Standards have been developed by joint effort. The A.G.C. issues standard rating plates for pumps just as it does for mixers and pavers. The Standards, which are revised from time to time as needed, cover self-priming centrifugal pumps, diaphragm pumps and road pumps. All are definitely rated and

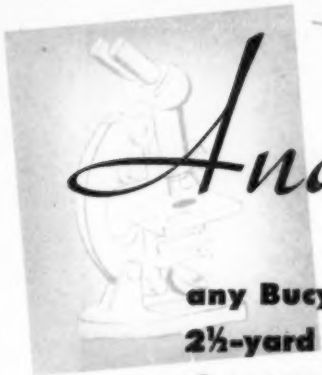
(Continued on page 380)

THE combined research, production and distributing facilities of three famous companies are now offered to American industry by The Colorado Fuel and Iron Corporation. Thus, a new nation-wide service is made available in steel, wire products, and allied specialties under the trade-marks of Wickwire Spencer, Calwico, and CF&I—each a standard of industrial progress in its own right.

The East and Middle West will continue to be served by Wickwire Spencer Steel Division. The Colorado Fuel and Iron Corporation will serve the Plains and Mountain States with CF&I facilities as before plus the products of the eastern and western divisions. The California Wire Cloth Corporation (a subsidiary) will supply its own products and in addition the products of the other two divisions to Pacific Coast customers.

The well-earned reputation for quality which these three companies have enjoyed will be maintained in the new and greater Colorado Fuel and Iron Corporation.

CF&I
WICKWIRE SPENCER STEEL DIVISION
The Colorado Fuel and Iron Corporation
THE CALIFORNIA WIRE CLOTH CORPORATION
EASTERN SALES OFFICES 500 Fifth Ave., N.Y. 18, N.Y. — EXECUTIVE OFFICES DENVER, COLORADO — WEST COAST OFFICES OAKLAND, CALIFORNIA — KEY CITY OFFICES SEE PHONE BOOK



Analyze

any Bucyrus-Erie ⅜- to 2½-yard excavator from the standpoint of features that reduce delays and you'll see its value to you. Take the ½-yard 15-B for instance:

ADJUSTMENTS: All adjustments, including singlepoint adjustments on clutches and brakes are easily made and stay put for long periods.

ACCESSIBILITY: Parts are large, simple, few in number, easy to get at for replacing. Lubrication fittings are easy to reach, hard to miss.

CONTROL: *All* operating levers, including lever for positive digging lock, are grouped at the operator's position. There are no time-wasting delays caused by the operator's having to leave his normal position.

CYCLE: All functions are balanced and synchronized so that there is no overstressing of any part or parts to cause too-frequent adjustments and excessive wear.

MOBILITY: The 15-B is easy to steer in sharp or gradual turns and there's plenty of power to climb grades up to 30%. Time spent in moving is cut to a minimum.

MATERIALS: Only controlled-quality materials, properly treated, are used.

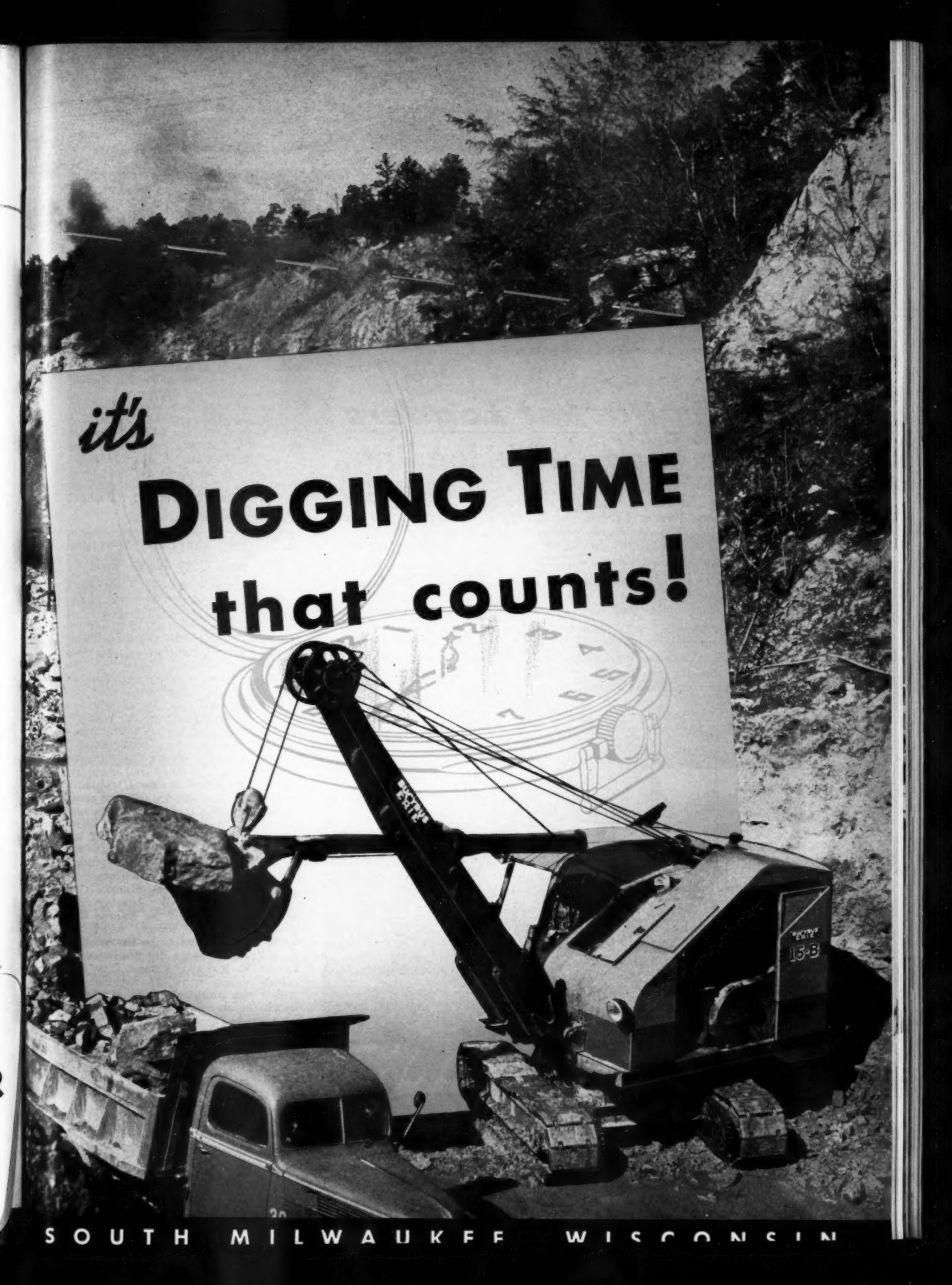
WEIGHT: The lightest weight consistent with ample strength is maintained throughout so that stresses on all parts of the machine are kept at a minimum. The 15-B, like all other Bucyrus-Eries, is *individually* designed for its work.

PERFORMANCE: The smooth, quiet performance of the 15-B — obtained with widespread use of anti-friction bearings, oil enclosed gears and accurate alignment — means less maintenance, reduces operator fatigue, and increases digging time.

you make the most of
EVERY HOUR
with a
BUCYRUS-ERIE

BUCYRUS ERIE

66E46C


it's
DIGGING TIME
that counts!
15-B
SOUTH MILWAUKEE WISCONSIN

Shots from the Firing Line

(Continued from page 377)

minimum and maximum engine sizes are specified. Standard performance tables are included for centrifugal pumps. Manufacturers subscribing to the Standards and holding membership in the Contractors Pump Bureau of the A.G.C. are: Barnes Manufacturing Company, Mansfield, Ohio; Chain Belt Company, Milwaukee, Wisconsin; Jaeger Machine Company, Columbus, Ohio; C. H. & E. Manufacturing Company, Milwaukee, Wisconsin; Construction Machinery Company, Waterloo, Iowa; Marlow Pumps, Ridgewood, New Jersey; Sterling Machinery Corporation, Kansas City, Missouri; Carver Pump Company, Muscatine, Iowa; The Gorman-Rupp Company, Mansfield, Ohio; Novo Engine Company, Lansing, Michigan.

In addition to the standardization work, the Contractors Pump Bureau has recently published a 40 page Pump Manual describing the several types of pumps and giving information relating to the selection of proper types and sizes, correct operation, maintenance and repair. Nearly 30,000 copies have been distributed.

The concrete mixer and pump standardization work has been very satisfactory to the Associated General Contractors and the manufacturers involved. Practically every construction project uses mixers and pumps and the benefits therefore approach a maximum coverage. While that may not be true in the same degree in the case of some other types of equipment, nevertheless standardization programs, wherever needed, are bound to be of large and lasting benefit to all concerned, and will contribute something more to that basic objective of the industry "to deliver to the public a constantly increasing value per dollar invested in construction."

How BG *Bucket Loaders* screen to size while loading..

• Screening and loading become one continuous operation with the Barber-Greene Bucket Loader. One machine and one operator do the entire job. The double deck vibrating screen operates right on the loader and moves with the loader, requiring no change of set-up as the working face progresses.

In addition, bank run material is loaded at the time and in the quantities actually needed. There are no piles of screened material scattered around to be run over by trucks and lost.

Barber-Greene Bucket Loaders, built in several different models and sizes, are designed to operate with scalping and vibrating screens and other accessories. Write for Catalog No. 82, which illustrates and describes the mechanical features of the loaders and their accessories. Barber-Greene Company, Aurora, Illinois.

40-14A

BG Barber-Greene CONSTANT FLOW EQUIPMENT

Award Stilling Basin Contract for Friant Dam

A $265,515 contract for construction work looking toward completion of facilities at Friant Dam on the Central Valley project in California has been authorized for award to Fred J. Maurer and Son of Eureka, California.

Principal work to be done under the contract is construction of a stilling basin at the toe of the dam, from which water will flow into the Friant-Kern Canal. The reinforced concrete basin structure will be about 440 feet long, from 50 to 78 feet wide, and 35 feet deep for about a fourth of its length nearest the dam.

Civil Engineers to Meet in Kansas City Next Fall

Kansas City, Missouri, has been awarded the 1946 Fall Meeting of the American Society of Civil Engineers, it was announced by Col. William N. Carey, Secretary and Executive Officer, at the Society's national headquarters in New York.

Dates of the meeting are October 16-19, and some 800 members of the 93-year-old Society, oldest national engineering organization in the country, are expected to attend. Several technical sessions, at which water supply, sewage disposal, highways, airports, city planning and other civil engineering matters will be discussed, will mark the session. At a general meeting opening day, W. W. Horner, St. Louis consulting engineer, national president, will deliver an address. Tours of engineering and historic interest are being arranged for the visiting engineers and their families.

John C. Long, of the Kansas City construction company bearing his name, is president of the Kansas City local section of the Society, which will be host to the meeting. He heads a committee arranging for the sessions. Ernest E. Howard, Kansas City consulting engineer, is the national Society's vice president in the district in which the meeting will be held, and is cooperating in making the arrangements.

Get Bids for South Dam Across Grand Coulee

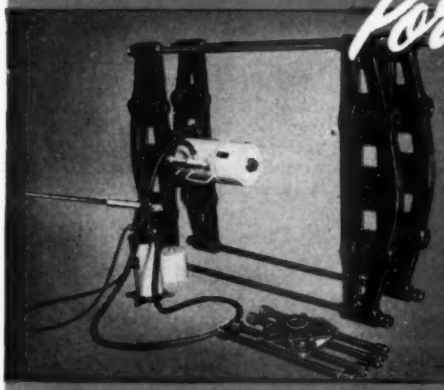
A low bid of $2,771,887.50 for constructing the 10,000-foot earth-rock South Dam across the mouth of the Grand Coulee at Coulee City, Grant

2 unusual hydraulic PRESSES

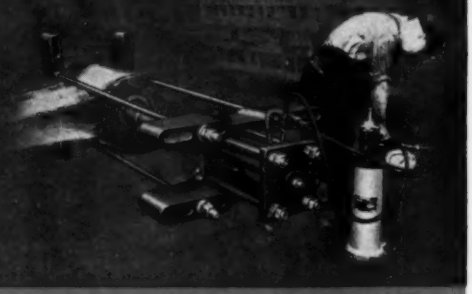
that can save you Time, Labor and Trouble

on 101 maintenance, service and special jobs.

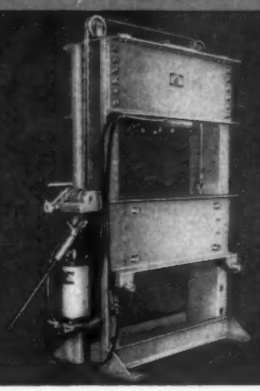
RODGERS *Portable* UNIVERSAL PRESS



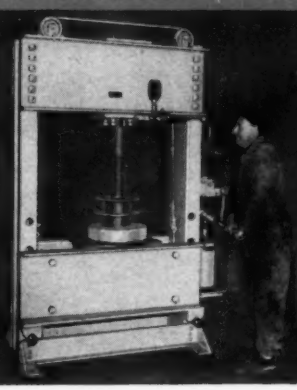
Left: Here is a Rodgers 200 ton Universal with back plate and rods shown beside it. At right is a Rodgers Universal mounted around a large pitman to pull the shaft. Real power—easy to use!



RODGERS *Flexible* SHOP PRESS



Left: A Rodgers 100 ton Shop Press—study its simplicity—note pins below bed for increasing opening—hand pump mounted on side. Right: A bushing is easily pressed into a sheave with a few strokes of the hand pump.



STOP and think of all the uses you can find for these versatile Rodgers Presses — pulling gears, pinions and wheels; pressing shafts, bushings and pins, squeezing, clamping and jacking operations —wherever you need 50 to 200 tons of easily-applied hydraulic power.

The Rodgers Universal is a unique portable unit for field or shop service. It is used on a stand as an ordinary press, on its side or flat and is easily assembled around equipment for special operations. Rodgers Hydraulic Hand Pump or Power Pump supplies power.

A Rodgers Shop Press is a flexible unit with a bed that is easily raised or lowered to accommodate various size work. Cylinder may be adjusted across entire width of bed. Rodgers Hand Pump or Power Pump furnishes pressure.

If you have equipment to service you can save yourself hours of time and labor with a Rodgers—they often pay for themselves on a tough job or two. Write for *all* the details. It will be profitable.

Send for this new catalog . . .

It will give you complete information on Rodgers Hydraulic Presses. No obligation, of course. Write today.

Rodgers Hydraulic, Inc.

hydraulic power equipment

Shop Presses

Crawler-Track Presses

7417 Walker St., St Louis Park, Minneapolis, Minnesota

Power Pump Units

Portable presses

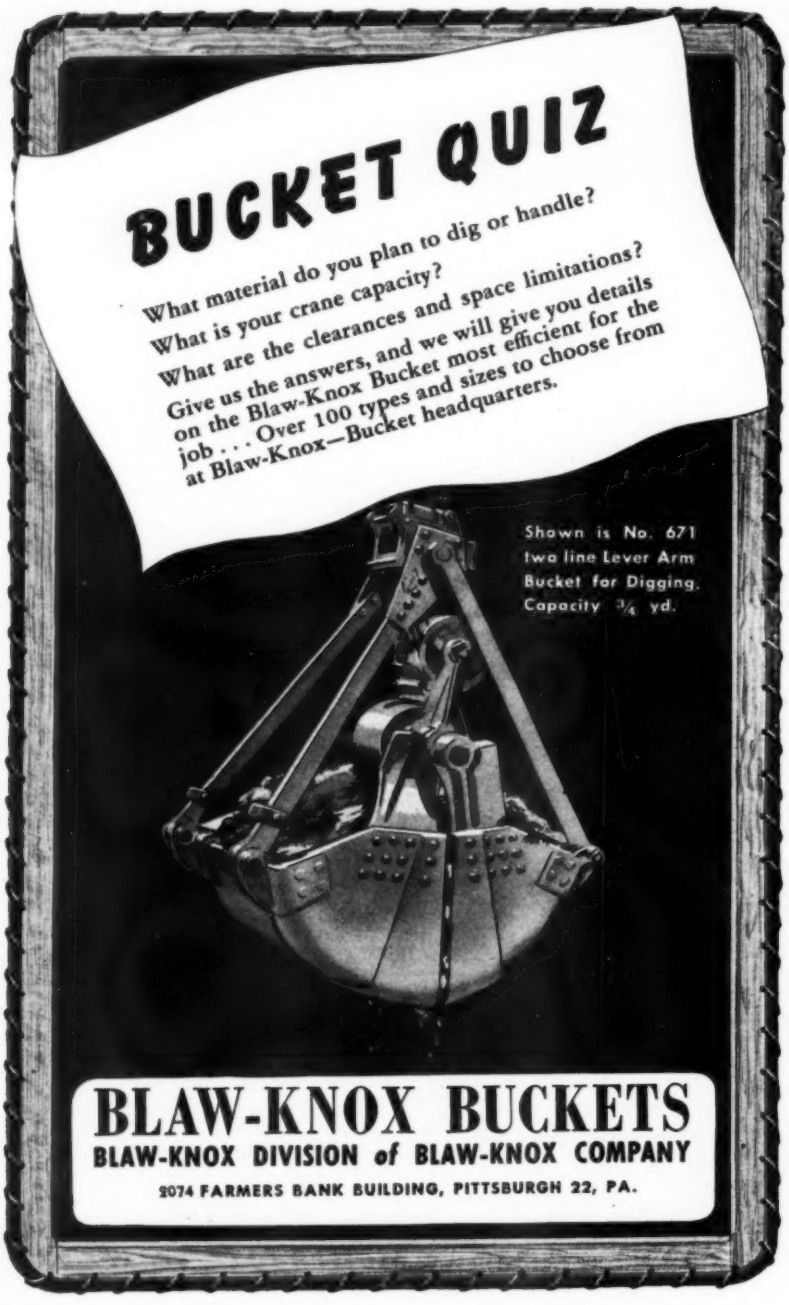
County, was submitted jointly by two Spokane firms, Roy L. Bair & Co., and James Crick & Sons, according to Bureau of Reclamation officials. Six bids were submitted.

The 10,000-foot barrier to be erected across the southern end of the Grand Coulee will back up a 27-mile equalizing reservoir. It will be about 450 feet wide at the base, will have a maximum height of about 65 feet, and will require 1,500,000 cu. yds. of material. The core will consist of compacted soil, sand and gravel rolled in six-inch layers. The outer portion will be of similar composition and the slope on the reservoir side will be protected by a three-foot-thick rock riprap.

The contract includes excavation of approximately 685,000 cu. yds. of earth and rock for an approach channel to the headworks of the Main Canal, which will be built in the dam, and for the first 2,400 feet of the Main Canal, which will run southeasterly from the dam. The approach channel will be 3,800 feet long and 120 feet wide at the bottom; the Main Canal section 2,400 feet long and 50 feet wide at the bottom. Excavated material will be used in the dam, over which a roadway will be constructed.

Created in the abandoned, ice-age bed of the Columbia River, the reservoir in the Grand Coulee will be blocked at its upper end by another earth-and-rock barrier, the North Dam, near Grand Coulee. Water will be pumped into the reservoir by the world's largest pumps operating at Grand Coulee Dam and drawing water from Lake Roosevelt. Bureau engineers said construction of the South Dam is an essential part of the building program planned for serving 400,000 acres of land in the Basin with irrigation water by 1950-51.

The first contract for construction work on the irrigation system was awarded recently to Morrison-Knudsen Company, Inc., Seattle, which also was a bidder on the South Dam. The Coast firm was low bidder at $619,000 for excavating 6½ miles of the Main irrigation canal from near Stratford to the vicinity of Adrian, Grant County.


BUCKET QUIZ
What material do you plan to dig or handle?
What is your crane capacity?
What are the clearances and space limitations?
Give us the answers, and we will give you details on the Blaw-Knox Bucket most efficient for the job . . . Over 100 types and sizes to choose from at Blaw-Knox—Bucket headquarters.
Shown is No. 671 two line Lever Arm Bucket for Digging. Capacity ¾ yd.
BLAW-KNOX BUCKETS
BLAW-KNOX DIVISION of BLAW-KNOX COMPANY
2074 FARMERS BANK BUILDING, PITTSBURGH 22, PA.

No Cement Shortage at Production Sources

Marquette Cement Manufacturing Company cites figures from the U. S. Bureau of Mines and the U. S. Department of Commerce to demonstrate that there is no shortage of cement at the production source. These figures indicate that present actual productive capacity of the cement industry exceeds all estimated demand by a margin of almost two-to-one. "The most optimistic estimate of consumption calls for about 60% of the cement industry's capacity," it said.

Latest figures of the U. S. Bureau of Mines credit the cement industry with active facilities for the production of more than 238 million barrels of cement annually. Potential productive capacity, including that of plants temporarily closed for major repairs, is given as being around 260 million barrels annually. The Industry Report of the U. S. Department of Commerce, revised as of March, 1946, calls for estimated consumption of 126 million barrels of cement to cover all domestic building and repair needs this year.

Dealers Groups Dissatisfied With Surplus Disposal

Dissatisfaction and discouragement over the surplus property disposal of heavy machinery, hardware, automobiles, trucks, tires, farm equipment, etc., has almost reached the stage of open revolt. This was emphasized at a recent meeting in Washington, participated in by officials of national associations representing these and allied industries.

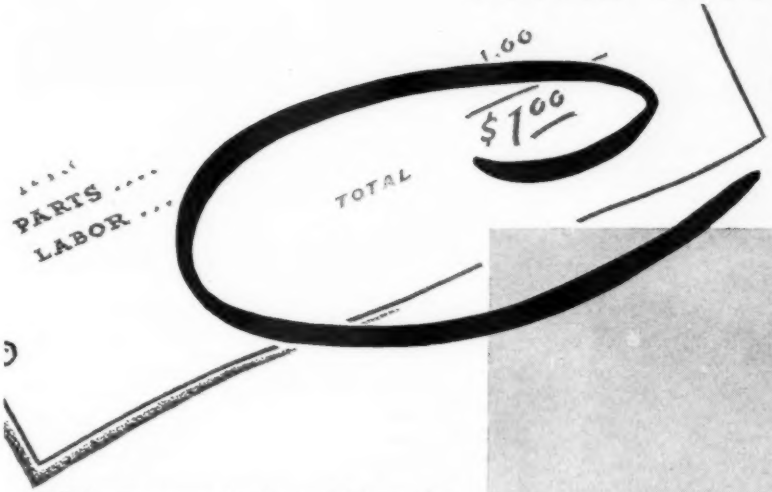
Ed. P. Phillips, of Richmond, Va., Chairman of the Committee on Disposal of Government Surplus of Associated Equipment Distributors, presided over the meeting which was participated in by officials of such organizations, collectively representing thousands of distributors and dealers in the products represented by their respective groups, including Associated Equipment Distributors, a group comprised of distributors and manufacturers of

(Continued on page 386)

98% OF ALL THE GENERALS EVER BUILT ARE STILL IN ACTIVE SERVICE!

22,000 HOURS OF OPERATION---

TOTAL COST OF REPAIRS

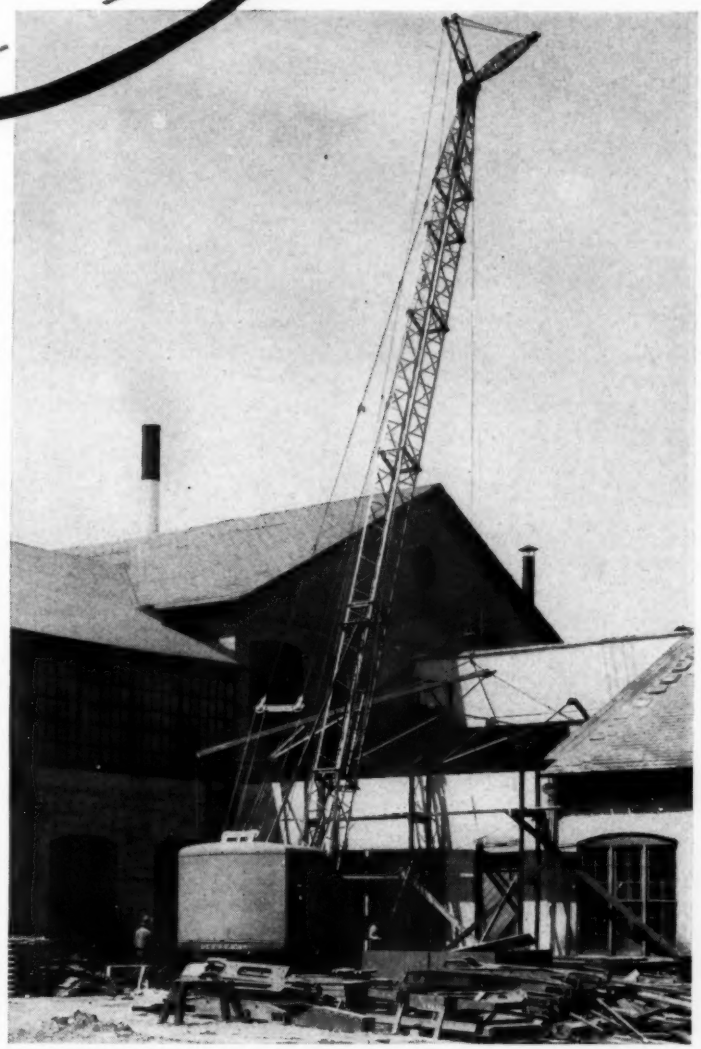


$1.00

There's a record to shoot at! A heavy duty ¾-yard GENERAL, owned by Mr. J. R. Savage, prominent Ohio construction man, operated an average of 20 hours a day for 3½ years, working alternately as pull shovel, clamshell, dragline and crane, and during that time the total cost of repairs to the unit was exactly ONE DOLLAR! That's keeping service costs at rock bottom!

And don't forget, this amazing record was compiled on all types of work . . . Mr. Savage keeps his equipment busy on every kind of job. This GENERAL took all the jobs, even the toughest ones, in stride. Right now, this unit is busy on a $750,000 project Mr. Savage has started for the Wheeling Steel Corporation.

Low-cost, efficient performance like this means lower bids, more work, greater profit. The record proves that General-built equipment will deliver cost-cutting performance, time and again. Remember, 98% OF ALL THE GENERALS EVER BUILT ARE STILL IN ACTIVE SERVICE. That's a factor worth considering when you're planning to purchase new equipment. Better get complete details on the new line of GENERALS soon to be available . . . it's the first step to greater profits!



THE OSGOOD COMPANY
SHOVELS, DRAGLINES
CRANES
CRAWLER & WHEEL MOUNTS
DIESEL, OIL, GAS, ELECTRIC

Associated with The Osgood Company

GENERAL EXCAVATOR CO.
CRANES-SHOVELS MARION OHIO USA GENERAL OSGOOD
MARION, OHIO

GENERAL
CRANES, DRAGLINES
AND SHOVELS
DIESEL, GAS, ELECTRIC

"MISSISSIPPI WAGONS GIVE US *The Cheapest Y*

Mississippi Wagons loading, hauling and dumping on the Mississippi River levee operations of T. H. Stout Construction Company

HEMMING in Ol' Man River is a tough, never-ending job that goes on in all seasons and weather. Levee construction calls for tough, never-quitting hauling equipment... if work is to go forward on schedule and at a profit.

The ability of Mississippi Wagons to keep going in rough going is well known along the levees. But the full degree of their freedom from expensive repairs, and consequent ability to haul at rock-bottom costs-per-yard, is best revealed by the cost records of owners—such as the T. H. Stout Construction Company, of Cleveland, Miss.

"Worst Conditions in 25 Years"

The T. H. Stout Construction Company purchased seven Mississippi Wagons in September, 1944, to handle contracts for levee work at points south of Greenville, Miss.

After encountering normal conditions during the first construction season, the company resumed work in June, 1945, in ground still waterlogged from floods. Heavy intermittent rains kept the ground from drying out during the entire remainder of the year. "Operating conditions," says T. H. Stout, owner of the company, "were the worst that have been known along the Mississippi River in any construction season in the last 25 years."

In 15 months, nevertheless, the seven Mississippi Wagons hauled a total of 724,000 yards of earth to the levee, for an average of 103,428 yards per unit. Some of the dirt was carried from considerable distances, and much of it was hauled to the top of the embankment, as the company's contracts included heightening the levee by five feet.

1 1/6¢ Per Yard For Repair Parts

During these 15 months the Stout company used a total of $8,421.56 worth of repair parts on its Mississippi Wagons — an average of $1,203.08* per unit. Figured on a yardage

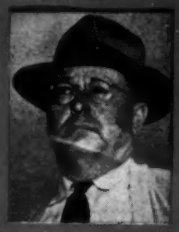
*Broken down as follows: Motor, $277.95; fuel pump, $79.96; master clutch, $32.64; transmission, $282.35; rear end, $206.66; miscellaneous, $126.66; trailer, $198.86.

For further information on Mississippi Wagons, consult your nearest distributor or write direct.

M-R-S MANUFACTURING COMPANY
JACKSON, MISSISSIPPI, U. S. A.

...dage We've Ever Hauled!"

—T. H. STOUT, Mississippi Levee Contractor



basis, the repair parts cost came to just one and one-sixth cents per yard of dirt hauled.

"For Mississippi River levee operations, and particularly under last season's conditions, this is an almost unbelievably low figure," declares Mr. Stout. "And it would undoubtedly have been even lower, had we not been forced to use our head mechanic as job superintendent, making it impossible for him to properly supervise the maintenance of our equipment."

Easy, Efficient Operation

"In addition to the low maintenance cost of our Mississippi Wagons," says Mr. Stout, "we are highly pleased with their ease of operation, operator comfort, superior flotation on soft ground, accessibility for making repairs, and short turning radius.

"With their all-round operating economy, I am convinced that Mississippi Wagons give us the cheapest yardage we've ever hauled. And I am also convinced that any hauling equipment that could operate successfully and economically for us during the past season, can do likewise on any construction job anywhere!"

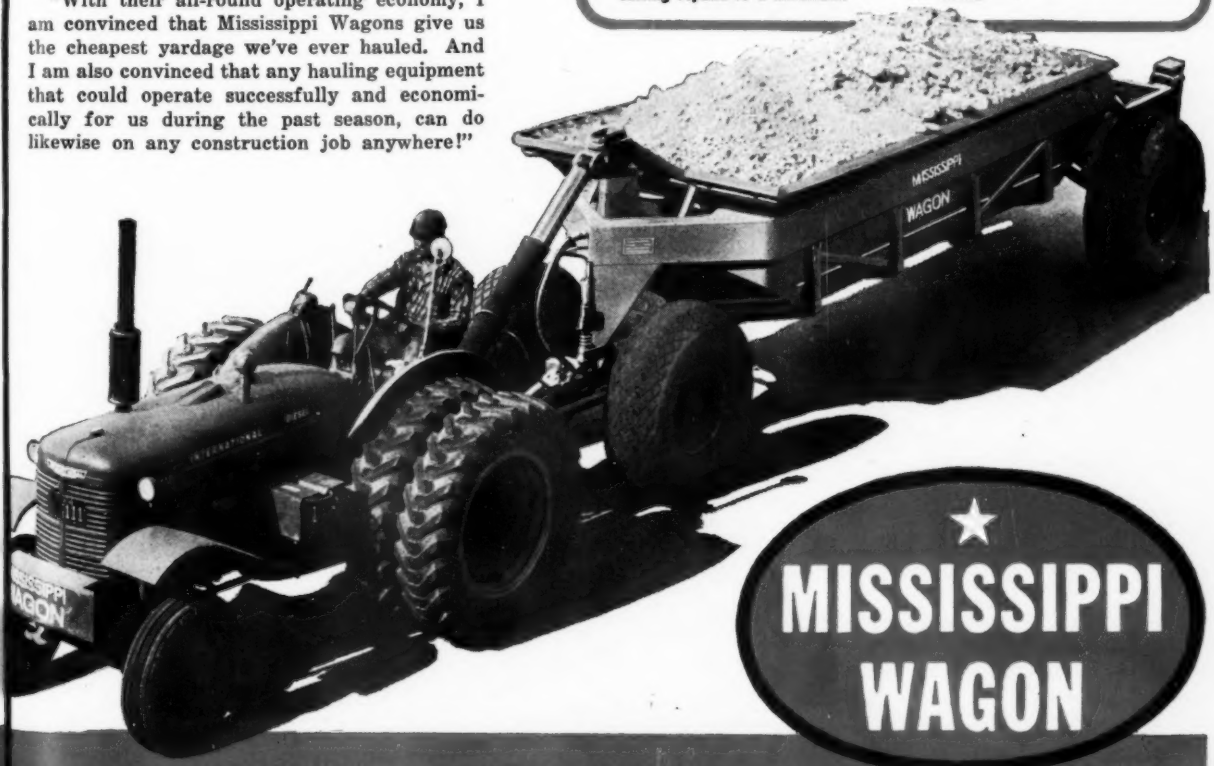
Only MISSISSIPPI WAGONS Give You Both These Important Advantages:

1. FOUR-AXLE CONSTRUCTION

- Puts more tire surface on the ground, providing maximum flotation over soft earth on construction work.
- Enables you to haul payloads of up to 27,000 pounds on highways without exceeding state axle-loading limits.
- Relieves the tractor of all trailer weight (except when needed for traction), thus prolonging tractor life and cutting repairs to a minimum.

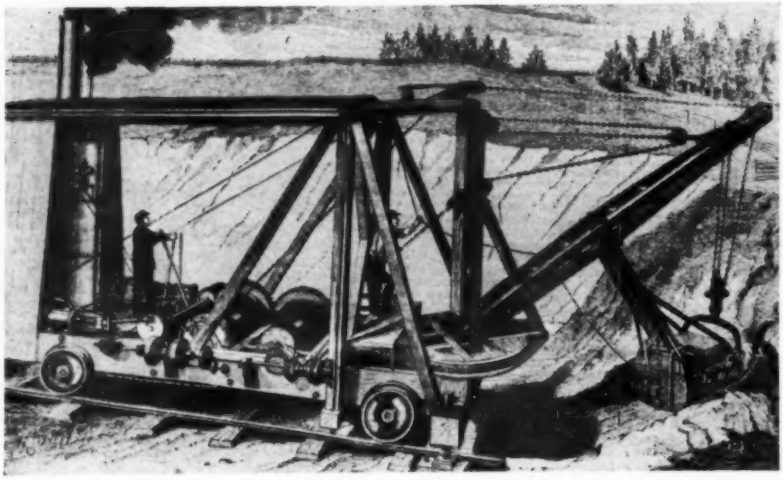
2. HYDRAULIC WEIGHT TRANSFER

The simple hydraulic cylinder transfers weight from trailer to tractor when extra traction is needed. This patented feature is found exclusively on Mississippi Wagons. It makes possible their four-axle design, which gives you both construction and over-the-highway equipment in a single unit . . . for a single investment.



★ MISSISSIPPI WAGON

★ *The World's Most Modern Hauling Unit*



• Early excavator used for railway and canal excavation.
Photo from The Bettmann Archive

Shots from the Firing Line

(Continued from page 382)

heavy construction and roadbuilding machinery.

Informal discussions at the meeting, while not impugning the motives or sincerity of the War Assets Administration officials, indicated the belief based upon many discouraging experiences of the membership of all groups represented that something must be done in the near future, either by a more realistic, vigorous, and forthright policy on the part of those entrusted with administration of the Surplus Act, or by Congress in the way of reexamination and streamlining of the Act.

Lack of uniformity of operations in regional WAA offices throughout the country; likelihood of an expansion of WAA personnel in regional offices by close to 35,000 employees to implement a decentralized disposal procedure which will entrust even broader authority to regional directors and their subordinates to work out their own methods, techniques and procedures; the failure of WAA officials to think in terms of "first things first" in expeditious disposal of heavy machinery and other materials and supplies vital to the entire reconversion program and to the national economy, were matters emphasized in the meeting.

The general confusion of the overall surplus property disposal picture was underlined with reference by various speakers to items in critical supply needed for industrial and commercial construction and roadbuilding, on the nation's farms, etc., known to be "hidden away" in storehouses and supply depots in various parts of the country. One speaker referred to millions of feet of lumber yet to be salvaged from surplus military establishments, for which plans for salvaging are still in the discussion stage.

Reference was made to various occasions where large sales had been advertised weeks in advance "at tremendous cost to tax payers," where thousands of prospective dealer and distributor buyers had gathered from all parts of the country. Regardless of the fact that their attendance at these sales involved much expense and business inconvenience, it frequently developed that most of the critical items previously offered to priority and preference groups, including veterans, had suddenly been withdrawn by the War Assets Administration.

Throughout the meeting, emphasis was laid upon giving veterans every possible consideration in acquiring gov-

Multiple Rope
Power Arm
Dragline
The Leader
IN WELDED CONSTRUCTION
WELLMAN
Williams Type BUCKETS
Wellman pioneered in the welded construction of rolled steel buckets. Priceless experience, superior engineering and the finest type of construction guarantee you more satisfaction from your Wellman-built buckets.
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THE WELLMAN ENGINEERING COMPANY
7002 CENTRAL AVENUE • CLEVELAND, OHIO

ernment surplus without creating a situation that will enable unscrupulous buyers to use the veteran as a cats-paw for obtaining vast quantities of goods for profiteering purposes.

The group participating will hold conferences within their respective industries preliminary to a contemplated conference of all trade associations interested in surplus property to be held in Washington at an early date, at which specific plans and proposals for dealing with what one speaker described as "an intolerable situation—fair neither to the taxpayer nor the American business man," will be offered and discussed. This conference will seek to work out a cooperative program and approach to the whole surplus problem.

Contract for About 50 Miles of Laterals on Altus

Approximately 50 miles of laterals and sub-laterals for the irrigation system of the Altus project in Oklahoma will be built under a contract authorized for award by the Bureau of Reclamation.

Successful bidder on the work was the James and Phelps Construction Company of Oklahoma on a low bid of $299,547.

Work to be done under the latest contract authorized for award includes the excavation of approximately 298,000 cu. yds. of earth, the laying of almost one and one-half miles of precast concrete pipe, construction of bridges, siphons, railway and highway crossings, turnouts, weirs, flumes and other structures.

Work under two other contracts authorized in April is also scheduled to get underway soon. This will include excavation and structures of the 11½-mile West Canal extending north and west of Blair, under a contract with the Stebbins Construction Company of Tulsa, Oklahoma. The James and Phelps Company, under a previous contract, will start construction of about 15 miles of laterals and sub-laterals on another part of the project and lay the three-mile concrete pipeline which will provide a water supply for the City of Altus.

The key engineering feature of the project is the Altus Dam, a concrete structure 110 feet high located on the North Fork of the Red River. Work on the dam and the four-mile Main Canal is virtually complete. Construction of the 21½-mile Altus Canal is in progress.

Granby Dam Contract Goes To Seven Firms on Joint Bid

The contract for construction of Granby Dam on the Colorado River about 50 miles northwest of Denver has been authorized for award to seven contracting firms on a joint bid of $5,988,969, Secretary of the Interior J. A. Krug announced.

One of the key structures on the huge irrigation and hydroelectric project being developed by the Bureau of

...AND OUR OWN HUMID JUNGLE, TO GIVE YOU DEPENDABLE IGNITION

Day after day, extra fine, highly abrasive dust, imported from Arizona, sweeps around an operating WICO magneto . . . 1500 hours . . . 2000 hours . . . and still the "mag" runs on. In a nearby humidity box where the temperature is 90°-120° and the humidity 95%, another WICO magneto gathers drops of warm moisture . . . collecting water drips over it from above, hour after hour.

These are only two of many tests started back in 1942 . . . tests that assure us and guarantee you the finest line of magnetos engineering skill can produce.

This new line of magnetos, identified by the letter "X" will soon be introduced on these pages. Simpler in design, sturdier in construction, with less parts to get out of order, they will replace several of the older WICO models you know so well. Wico Electric Company, West Springfield, Mass.

WICO
THE HEART OF YOUR ENGINE

Reclamation in northern Colorado, Granby Dam will be an earth-fill structure 885 feet long at its crest and rising 232 feet above the bed of the river. Its reservoir will provide storage for more than 482,000 acre-feet of water.

Three bids were received, the lowest submitted by Granby Constructors of Denver, a joint company made up of the following firms: Peter Kiewit Sons Company, Grafe-Callahan Construction Company, Condon-Cunningham, and Gunther and Shirley, all Nebraska firms; Brown and Root, Inc., of Texas; Martin Wunderlich of Missouri; and Ed. H. Honnen Construction Company of Colorado.

Under terms of the contract construction work will be started within 30 days of the date the contractor receives notice to proceed. The dam will be located in a setting of lofty mountain peaks about five miles northeast of Granby, Colorado, in the Estes Park area. About three and one-half years will be required to complete the structure.

The contract also provides for the construction of several earth-fill dikes. These will vary in height up to 75 feet and will be built at low places in the terrain to form the reservoir basin.

Commissioner of Reclamation Michael W. Straus said that the Colorado-Big Thompson project from an engineering standpoint is one of the most spectacular projects ever undertaken by the Bureau in developing the water resources of the West. It is designed to divert surplus waters from the western slope of the Rocky Mountains through a 13-mile tunnel under the Continental Divide to water-deficient irrigated areas on the eastern slope.

This transfer of water will provide supplemental irrigation for about 615,000 acres. Power plants at the dams and at drops along the main diversion canals will generate electricity for irrigation pumping, rural electrification and for developing the mineral and other resources of the region. These plants would have a generating capacity of approximately 152,000 kilowatts. Revenues from the sale of power will repay a major portion of project construction costs.

More than four million cu. yds. of earth and rock will be excavated at structural sites and borrow pits in the construction of Granby Dam and dikes. The upstream face of the dam will be covered with rock rip-rap three feet thick. The spillway at the left abutment will be an open channel in rock with its water discharge controlled by two 21 by 20-foot radial gates.

Colorado river water to be stored in the reservoir of the new dam will be pumped into Shadow Mountain Lake, an extension of Grand Lake. It will then be diverted through the 13-mile Alva B. Adams Tunnel, passed through a series of power plants and re-stored in reservoirs on the eastern slope of the Rockies for release into the Big Thompson and Poudre rivers and the canal system serving a wide expanse of irrigated lands in northeastern Colorado.

Construction is also progressing on several other important features of this trans-mountain diversion system, Commissioner Straus said. This includes construction of Rams Horn and Prospect Mountain tunnels, each about a mile in length and work towards completion of facilities at Shadow Mountain Dam and the Adams Tunnel.

Shipment of Carrying and Hauling Scrapers

Manufacturers shipped more carrying and hauling scrapers during the fourth quarter of 1945 than they shipped in any previous quarterly period for which statistics are available, according to a report released by the Bureau of the Census. Shipments of scrapers during the last quarter of 1945 amounted to 1,707 machines as compared with shipments of 1,306 units during the third quarter of last year. The average quarterly shipment rate of 1,506 machines during the last six months of 1945 represents an increase of approximately 130 percent over the quarterly rate achieved during the five-year period preceding the war, 1937-1941.

Unfilled orders for 5,493 scrapers as of December 31, 1945, constituted a heavy backlog of demand for this type

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Custom-Bilt
for Trucks, Tractors, Trailers, Buses, Cars and Heavy Duty Equipment

Smooth, non-grabbing action that adds countless miles to tire life and reduces strain on driver and equipment.

Balanced holding power for positive stopping under all conditions.

No let down in efficiency on long grades.

Long wear life with fewer adjustments to keep vehicles on the road, maintaining schedules with SAFETY.

These are a few of the many Extra Values GATKE CUSTOM-BILT Brake Blocks give you. They are saving time and money for fleet operators, LARGE and small, all over America.

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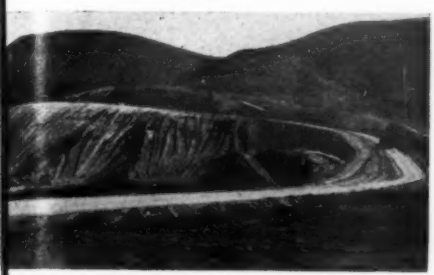
228 N. La Salle St., Chicago 1, Ill.

ot equipment. These orders represent an approximate 1½ years backlog based on the current shipment rate. Between September 30, 1945, and the end of the year, the backlog of orders had increased by 80 perecent. However, as in the case of many other types of heavy capital goods, unfilled orders during this period may be somewhat overstated due to the practice of some buyers who, in a period of short supply, duplicate their orders with more than one supplier.

• Nathan Moore of Alhambra, Calif., operating as sub-contractor to Haddock Engineers of Pasadena, moved 700,000 cu. yds. of material in the leveling and construction of a new industrial building area adjacent to Camp Pendleton, Oceanside, Calif. The material was leveled with material borrowed from a nearby steep hill. Scraper units loaded down grades as steep as 40 to 50% and then hauled the material half a mile and spread the heavy, dry sandstone and clay on the fill area. Return route to the top of the cut was up a 27% adverse grade.



• Returning for new loads the Tournapulls negotiated two-tenths of a mile up a ramp with a 27% adverse grade.

• Rigs started over the edge with push-tractor help, then completed heap-capacity loads themselves, as they traveled down the steep incline.

Iowa to Spend $106 Million On Roads by End of 1948

Iowa is planning to spend at least $106,000,000 on highway construction by the end of 1948, according to announcement by Gov. Robert D. Blue. He said $45,529,000 will be spent on the primary road system, and $60,546,000 will be spent on secondary roads.

Besides the $106,000,000 in sight, Governor Blue pointed out that the state may obtain an additional $18,000,000 from a one-cent gasoline tax increase imposed by the 1945 State Legislature but now being challenged in the courts. If this extra cent of tax is upheld, he said the expenditure for Iowa roads in the next two and a half years can go to $124,000,000.

The governor said the program would exceed the primary paving program originally begun with the voting of $118,000,000 of bonds by 98 of the 99 Iowa counties.

He said the $33,000,000 of federal postwar highway aid available to Iowa by 1948 can be matched for two years from present funds, and that the 1947 Legislature will have to provide money to match federal aid for the third year.

"I have asked the tax study commission," he said, "to recommend a program for redistribution of the cost of paving city and town streets, and modernizing municipal street construction laws to bring the municipalities in line with modern financing for primary and secondary roads.

"Important through traffic arteries . . . can't be built while all the cost of construction is assessed against abutting property owners. They should not bear the burden because they are not the beneficiaries of the paving. It should be possible to work out financing that would get part of the cost from special assessments, and part from statewide funds."

Contract of $12,203,692 Let for Fort Gibson Dam

U. S. Army Engineers have awarded a $12,203,692 contract for the first phase of construction of the Fort Gibson Dam near Muskogee, Oklahoma to the Al Johnson Construction Company and the Winston Brothers Company, both of Minneapolis and Peter Kiewit Sons Company of Omaha, Nebraska.

On the Grand (Neosho) River, the project was authorized by the Flood Control Act of August 18, 1941 and construction was barely under way when it was suspended by the war emergency.

Project plans provide for a dual purpose flood control and hydroelectric power development by construction of a concrete dam 2,850 feet long with the top 110 feet above the stream bed. The reservoir will have a total storage capacity of 1,287,000 acre-feet at elevation 582 feet above sea level. This capacity will be divided into 922,000 acre-feet for flood control and 365,000 acre-feet for power storage. The power

SAUERMAN

Long Range Machines

Sackline Cableway Is in a Class by Itself

Cableway Feeds Screening Plant from Deep Pit

Above picture shows a Sauerman Slackline Cableway mining a gravel deposit 90 ft. deep and 1,000 ft. wide and moving the material to a hopper on top of screening plant at a rate of 110 tons an hour. Operating cost is only a few cents a ton and machine handles all material within its radius.

WHEN you have a problem of moving almost any kind of material, from a deep pit, river or pond, to a hopper storage pile or other elevated point—there's nothing quite equal to a Sauerman Slackline Cableway.

This machine is digger, conveyor and elevator all in one. It utilizes a round bottom excavator bucket that has the same powerful digging action as the buckets used on revolving dragline excavators. The bucket is chain-suspended from a carrier running on an inclined track cable and is equipped with a simple dumping device which permits automatic dumping at any predetermined point along the track cable.

After dumping its load, the empty bucket is carried by gravity back to the digging point. The track cable swings around a central mast or tower in a wide arc, the radius of which may be as much as 1200 ft., and the bucket digs and delivers wherever the operator wishes within the radius. Bucket sizes range from ⅓ to 3½ cu. yd. Electric, gasoline or Diesel power.

Ask for Catalog 19-C

SAUERMAN BROS., INC.

574 S. Clinton St., Chicago 7, Ill.

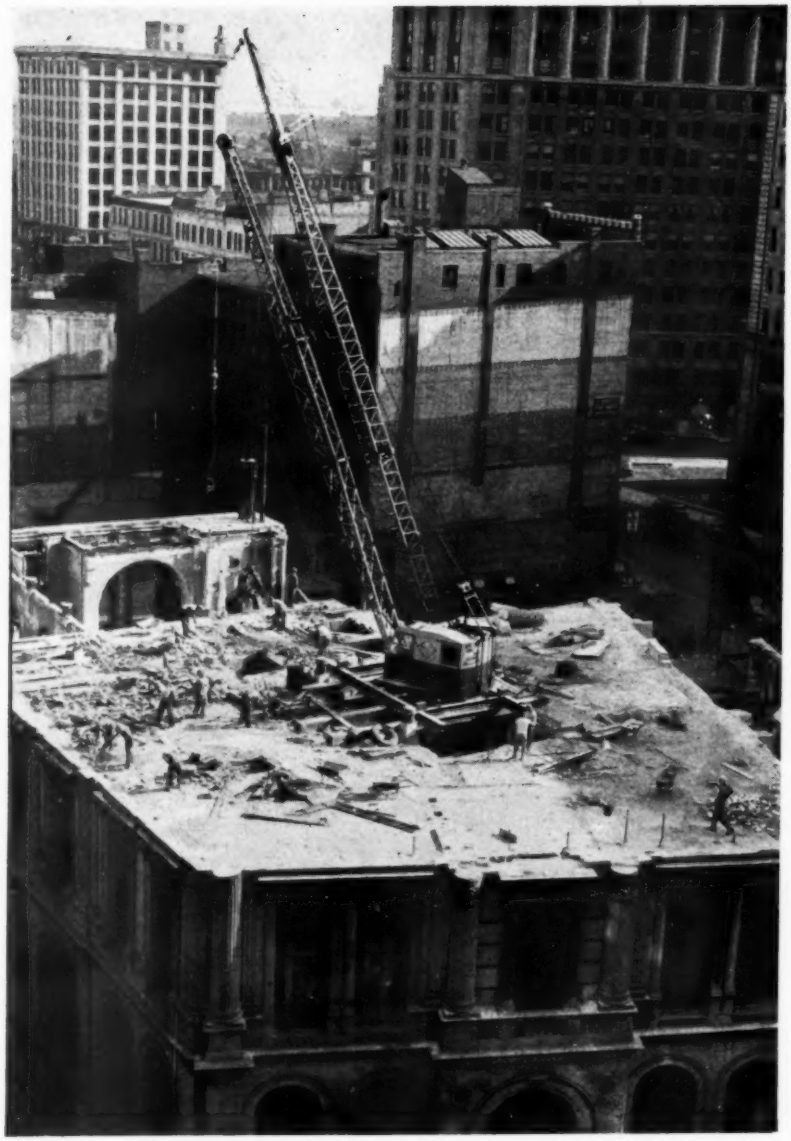
pool will be maintained at 554 feet above sea level and will inundate approximately 19,000 acres. Above this pool there will be the flood control storage space where water can rise to the 582-foot elevation, and, at this level, the reservoir will inundate approximately 51,000 acres.

Structures will include a powerhouse, a gate-controlled spillway, two non-overflow abutment sections, outlet works, and a short earth embankment section. The dam will be topped by a roadway.

The powerhouse will be located on the left bank of the existing river channel at the end of the spillway structure, and the spillway will extend across the river channel and a major portion of the right bank flood plain. Of the two concrete gravity type non-overflow sections, one will extend from the spillway 285 feet across the right bank flood plain to an earthen embankment section which will join the concrete structure to the valley wall, and the other will extend from the powerhouse side of the spillway 460 feet across the left bank flood plain to the left abutment.

The spillway structure, a concrete ogee type weir, will have 29 concrete piers, 10 feet wide and spaced 50 feet center to center, supporting the reinforced girder bridge and the hoists for operation of the tainter gates. These gates will be 40 feet wide and 35 feet high. There will be 30 openings between the piers, each of which will be 40 feet wide, making a total spillway length of 1,490 feet, or a net length of 1,200 feet.

Low-flow regulation will be provided for by ten sluices, five feet and eight inches by seven feet, through the spillway weir and underneath the bridge piers. An intake section, 318 feet long and located in the left bank flood plain adjacent to the existing river bed, will be provided. It will be of concrete, with six twin penstocks, fourteen and a half feet by eighteen feet in size. A concrete elevator and stairway will be located



• The crane mounted on the building and the clamshell working from the ground are being used by the John T. Duane Building Wrecking Company of Quincy, Mass., to wreck this six-story stone building erected in 1871 for the New England Life Insurance Company in Post Office Square, Boston. The track frame and crawler treads on this 18-ton Lima crane were removed and the machine was hoisted to the top of the building by the other Lima whose 130-ft. boom shows in this picture. It took about a year to demolish the building.

Photo by Charles E. Pelletier

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ONAN ELECTRIC GENERATING PLANTS supply reliable, economical electric service for excavating and contracting uses as well as for scores of other general applications.

Driven by Onan 4-cycle gasoline engine, these power units are of a single-unit, compact design and sturdy construction. Suitable for mobile, stationary or emergency service.

CAPACITY RANGE: 350 to 35,000 Watts.
ALTERNATING CURRENT: 115 and 230 Volts, 50 and 60-Cycle, single phase for all capacities. Three-phase for models 3 KW or larger. Other voltages and frequencies available.
DIRECT CURRENT: 115 and 230 Volts, 600 to 10,000 Watts. 6, 12 and 32-Volt Battery Charging types to 3500 Watts.
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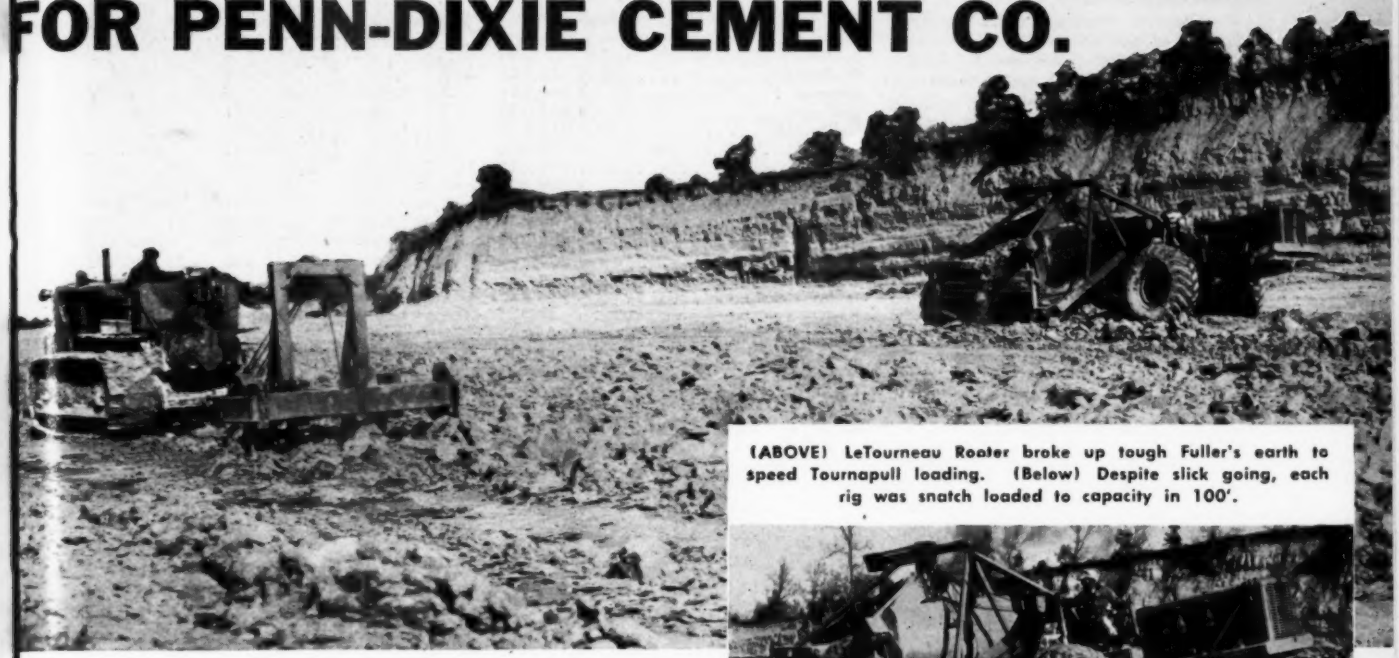
TOURNAPULLS STRIP 40' OVERBURDEN FOR PENN-DIXIE CEMENT CO.



(ABOVE) LeTourneau Rooter broke up tough Fuller's earth to speed Tournapull loading. (Below) Despite slick going, each rig was snatch loaded to capacity in 100'.

150,000 YARDS OF TOUGH MATERIAL MOVED WITH 4 VETERAN TOURNAPULL RIGS BY COFFEE CONSTRUCTION COMPANY

40' of overburden had to be removed from cement-rock strata at the Penn-Dixie Cement Co.'s Clinchfield, Georgia, pit. Coffee Construction Co. brought in a fleet of 4 Tournapulls, veterans of four years' steady use . . . with them, moved 150,000 yards on schedule.

Rooter Speeds Stripping of Tough Material

Working much of the time along 50 to 100' banks, the Tournapulls quickly cut down through top soil and Georgia red clay. Below the clay, Coffee Construction ran into rock, which was broken up with a LeTourneau Rooter and Dozed over the face into the pit. Next came Fuller's earth — slick and plenty tough. By breaking it up with the Rooter for easy Tournapull loading, Coffee Construction maintained the following Tournapull production:

Tournapulls Average 8 Trips Per Hour On 4200' Cycle

Working over 4200' cycles, each rig averaged a round trip every 7 minutes. Tournapull cycle time included loading the Fuller's earth, haul, spread in a mined-out area and return. By using a motor grader to maintain good haul roads, Coffee Construction took full advantage of fast Tournapull hauling speeds.

4 Years' Steady Use

Coffee Construction Co. knows Tournapulls' ability to deliver low-cost yardage with a minimum of maintenance. In spite of 4 years of hard and steady service in sand, muck, rock and red clay, some of these rigs still run on original drive tires. You'll find, too, that it will pay you to take advantage of Tournapulls' lowest-net-cost-per-yard on your stripping jobs. Ask your LeTourneau Distributor for facts and figures TODAY.

P010

Tournapulls spread their loads on dump in mined-out area, 2,000' from the cut.

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TOURNAPULLS*

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near the site of the powerhouse to provide access to the top of the dam from that building.

The present contract calls for construction of the non-overflow sections, the spillway and outlet works, intake section and appurtenant buildings. Other contracts will be awarded at later dates for construction of the powerhouse, installation of hydroelectric power generating facilities, three dikes, clearing of the reservoir area, and relocation of highways, railroads, and utilities.

Engineers say that had the Fort Gibson Dam been in operation, flood waters in May, 1943 would have been an estimated 4.6 feet lower at the dam site and 3.2 feet lower at Muskogee.

Apportion Second Federal Fund for Road Aids

Major General Philip B. Fleming, Federal Works Administrator, announced apportionment of the second $500,000,000 of the $1,500,000,000 fund authorized by the Federal-Aid Highway Act of 1944 to assist the States in developing a three-billion dollar highway program. The funds are for the fiscal year beginning next July 1 and will remain available for obligation to specific projects for two years.

The initial $500,000,000 authorization, for the current fiscal year, became available last October when Congress declared, by resolution, that the war emergency had abated sufficiently to permit State highway departments and the Public Roads Administration to launch the post-war highway program. A third authorization of $500,000,000 will become available on July 1 of next year.

The Act provides that the $500,000,000 authorization for each of the three fiscal years be apportioned as follows:

$225,000,000 for the Federal-aid highway system, apportioned on a basis of one-third in proportion to area, one-third in proportion to population and one-third in proportion to mileage of rural free delivery and star routes.

$150,000,000 for secondary or feeder roads, apportioned on the same formula as the funds for the Federal-aid system except that rural population, which includes the population of less than 2,500, is substituted for total population.

$125,000,000 for the Federal-aid highway system in urban areas, apportioned in proportion to population in urban places of 5,000 or more.

The funds are to be administered in cooperation with the State highway departments according to the usual Fed-

APPORTIONMENT OF FEDERAL-AID HIGHWAY, SECONDARY AND URBAN FUNDS FOR THE FISCAL YEAR 1947

State	Highway ($225,000,000)	Secondary ($150,000,000)	Urban ($125,000,000)	Total
Alabama	$ 4,722,535	$ 3,739,291	$ 1,303,288	$ 9,765,114
Arizona	3,240,289	2,240,966	262,168	5,743,423
Arkansas	3,868,788	3,112,746	558,221	7,539,755
California	9,017,519	5,161,445	8,122,233	22,301,197
Colorado	4,033,468	2,714,271	933,647	7,681,386
Connecticut	1,395,047	765,980	2,607,495	4,768,522
Delaware	1,096,875	731,250	204,057	2,032,182
Florida	3,236,081	2,167,725	1,599,641	7,003,447
Georgia	5,644,683	4,307,866	1,622,008	11,574,557
Idaho	2,798,389	1,956,701	211,799	4,966,889
Illinois	8,833,305	4,752,492	9,510,696	23,096,493
Indiana	5,403,402	3,623,057	3,065,734	12,092,193
Iowa	5,554,317	3,971,103	1,592,107	11,117,527
Kansas	5,646,272	3,963,849	1,107,219	10,717,340
Kentucky	4,213,497	3,412,080	1,299,529	8,925,106
Louisiana	3,394,999	2,540,348	1,531,578	7,466,925
Maine	1,948,844	1,403,942	560,538	3,913,324
Maryland	1,836,150	1,173,982	1,790,081	4,800,213
Massachusetts	2,942,606	786,455	6,612,615	10,341,676
Michigan	6,833,594	4,133,431	5,682,433	16,649,458
Minnesota	6,043,897	4,163,523	2,206,152	12,413,572
Mississippi	4,041,914	3,334,427	600,115	7,976,456
Missouri	6,664,077	4,565,111	3,151,158	14,380,346
Montana	4,543,707	3,104,425	307,665	7,955,797
Nebraska	4,470,027	3,155,163	782,776	8,407,966
Nevada	2,868,649	1,922,269	60,613	4,851,531
New Hampshire	1,096,875	731,250	475,000	2,303,125
New Jersey	2,864,310	1,041,631	5,527,987	9,433,928
New Mexico	3,644,292	2,522,486	257,261	6,424,039
New York	10,834,758	4,272,294	18,776,072	33,883,124
North Carolina	5,431,717	4,452,710	1,492,475	11,376,902
North Dakota	3,341,784	2,408,093	214,578	5,964,455
Ohio	7,893,255	4,650,034	7,539,574	20,082,863
Oklahoma	5,064,288	3,719,690	1,348,164	10,132,142
Oregon	3,728,403	2,544,245	810,873	7,083,521
Pennsylvania	9,182,796	5,268,563	10,517,201	24,968,560
Rhode Island	1,096,875	731,250	1,123,049	2,951,174
South Carolina	3,056,219	2,521,950	654,032	6,232,201
South Dakota	3,532,306	2,513,886	222,116	6,268,308
Tennessee	4,772,002	3,670,485	1,593,037	10,035,524
Texas	14,263,977	10,047,099	4,464,068	28,775.144
Utah	2,535,953	1,688,869	433,731	4,658,553
Vermont	1,096,875	731,250	211,884	2,040,009
Virginia	4,112,674	3,190,410	1,491,272	8,794,356
Washington	3,533,693	2,392,694	1,467,429	7,393,816
West Virginia	2,473,214	2,079,766	807,692	5,360,672
Wisconsin	5,430,678	3,678,326	2,654,468	11,763,472
Wyoming	2,794,242	1,896,157	133,049	4,823,448
Hawaii	1,096,875	731,250	393,416	2,221,541
Dist. of Col.	1,096,875	731,250	1,146,477	2,974,602
Puerto Rico	1,107,133	1,130,464	834,529	3,072,126

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INSURE A BIGGER DAYS WORK
with a MOUTHFUL AT EVERY BITE
For faster digging, ease of handling on difficult jobs and lowered operating costs, "get a line on an Owen Bucket".
Owen designs and builds to meet your every general or specific requirement.
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BRANCHES: New York, Philadelphia Chicago, Berkeley, Calif.
Write FOR THE NEW CATALOG

• This Army "jeep" has come from the destruction front to the construction front. It is being used by a timechecker obtaining the work-badge number of a truck driver at Anderson Ranch Dam.
Bureau of Reclamation Photo

eral-aid procedure. Only projects of the classes specified in the legislation and proposed by State highway departments may be considered.

Allatoona Dam Job Goes To National Constructors

BY HAL DAVID

The National Constructors, Inc., of Columbus, Georgia, a combination of Hardaway Contracting Company, Columbus, Ga.; Arundel Corporation, Baltimore, Md., and L. E. Dixon Company, Los Angeles, Calif., were awarded the contract for the construction of the new Allatoona Dam near Cartersville, Georgia.

Charles A. Jackson, Jr., has reported to Cartersville from Seattle to take charge of construction work on the new dam. Jackson, a graduate of Clemson College, served as lieutenant colonel in the Army Engineer Corps. He is resident engineer with U. S. Army Engineers, Mobile, Alabama Engineer District. He held the position of Chief of Engineering Division, U. S. Army Engineers, Seattle, Washington District, prior to his transfer to Cartersville. John S. Webster, of South Carolina, will be assistant resident engineer.

The new Allatoona Dam will cost $17,400,000. It will be constructed on the Etowah River, five miles from Cartersville. The dam will create a 20,300-acre lake.

Allatoona Dam is a concrete structure approximately 1325 ft. long. Maximum height above the foundation is about 200 ft. Materials to be excavated consist of approximately 135,000 cu. yds. of earth and 575,000 cu. yds. of rock.

Motor Vehicles Consume 19 Billion Gallons of Gas

Motor vehicles operated on the Nation's highways during 1945 consumed approximately 19 billion gallons of gasoline, an increase of about 16 per cent over the motor fuel consumption in 1944, according to figures compiled by the Public Roads Administration from gasoline tax collection records submitted by State agencies.

The report shows a total of 19,339,492,000 gallons of motor fuel consumed in 1945, as compared with a total of 16,610,651,000 in the preceding year. The increase reflected the removal of gasoline rationing.

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All-Purpose TRAILERS

Capacity, 4 Ton
Steel Floor, 6' Wide
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$155. Less Tires
$260. With New,
7.50x20
10 Ply Goodrich Tires
IMMEDIATE DELIVERY
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Shipments 10% With Order,
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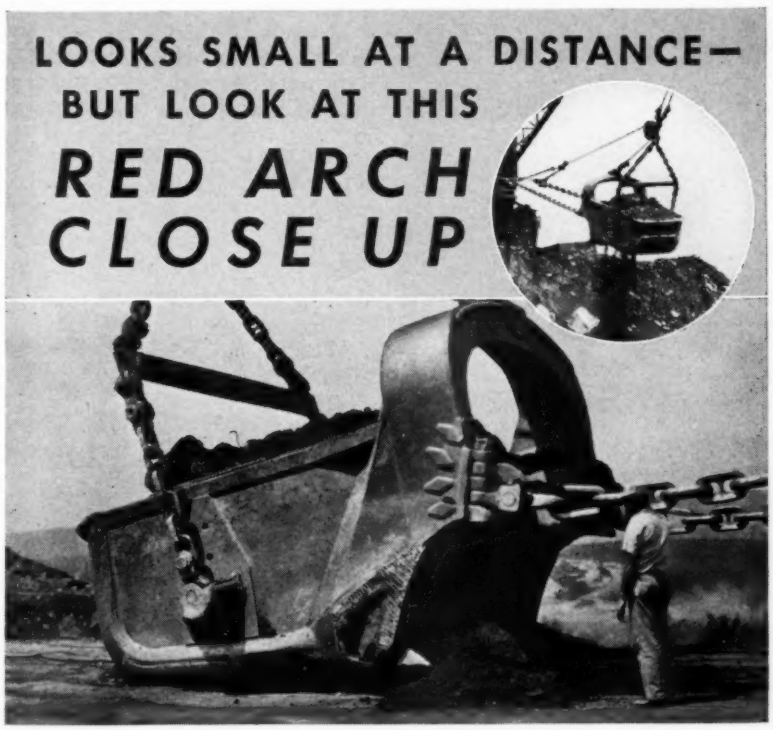
LOOKS SMALL AT A DISTANCE—
BUT LOOK AT THIS
RED ARCH
CLOSE UP



From far away, even a 25-yard Red Arch bucket looks small, but when you look at the close-up you can see its true proportions.

And you can see more than that, too. You can see the heaped load that's so typical of every pass with a Red Arch, from ⅜-yard on up. You can see the strong, long-life construction that means long "non-stop" use before there's any need for reconditioning. You can see the high arch that permits loads to flow in and out of the bucket easily for fast digging, quick clean dumping. And you can see the smooth, balanced design that means so much to speeding up the digging cycle.

Red Arch buckets are built in three types for light, medium, or heavy digging. Write for information on the size and type you need.

3R45

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

NOT in the Contract

Two old gentlemen were sitting comfortably in their easy chairs at the club enjoying an after-dinner cigar.

One said to the other, "Every time I come here my wife thinks I'm out chasing women. Gad — I wish she was right!"

Barber (whispering to new helper): "Here comes a man for a shave."

Helper: "Can I practice on him?"

Barber: "Okay. But don't cut yourself."

Man: "Say, do you take anything off for cash?"

Salesgirl: "Say, this is a department store, not a burlesque show."

"Ah," said the guest as they approached the house. "I see your dear son and daughter waiting for us on the porch."

"No," said the host. "The girl in the short frock is my mother and the young fellow in riding breeches is my wife."

A rag man drove his dilapidated wagon and scrawny old horse up in front of a saloon. Dismounting, he went in and ordered a beer.

"That horse of yours doesn't look like he felt so well," commented the bartender.

"Oh, he's all right," replied the rag man. "He's just been having a run of hard luck. You see, I flip a half dollar every morning to see whether I go buy him some hay or buy me some beer and the poor cuss has lost for ten mornings in a row."

Salesgirl: "Yes, Mrs. Gotrocks, our brassieres come in five sizes —small, medium, large, wow! and Ye Gods!"

"Have you any abnormal children in your class?" a harassed-looking teacher was asked.

"Yes," she replied, "two of them have good manners."

"There's only one thing wrong with me, blondie, I'm color blind."

"Boss, you sho' is."

"They're looking for a place where it will fit!"

A happily married couple believed in reincarnation. Finally, the husband died. Keeping a pact they had had for years, the wife communicated with him in the spirit world, twelve months after his untimely demise.

"Are you happy there, dear?" she asked.

"Happier than I ever was before," he replied. "The pastures here are greener, and it's indeed a beautiful world. And the weaker sex are the most gorgeous creatures you ever saw. Wistful eyes that speak of love; sleek bodies and beautifully rounded forms."

"Oh, dear!" she expostulated. "With so much temptation about you, I'm afraid you'll do something you'll be ashamed of. I do hope I can soon join you in heaven."

"Heaven?" boomed back the reply. "Who said I was in heaven? I'm a bull in Montana."

Visitor: "Your baby is certainly a cute little rascal. Does he take after his father?"

Mother: "Yes, in a way. His father is not so cute but much more of a rascal."

Two ants were running at a great rate across the cracker box.

"Why are we running so fast?" asked one.

"Don't you see—it says 'tear across dotted line'."

Mabel: "I wonder what catskinners talk about when they're alone?"

Minnie: "Probably the same thing we do."

Mabel: "Oh, aren't they awful?"

Sandy came riding into town with two bicycles. When asked how come, he told the following.

"I went riding with my fair Mary. When we came to the cornfields Mary was tired and we stopped to rest. She put her arms around me, squeezed me tenderly, and whispered sweetly into my ear, 'Sandy, you can have anything I got.' So I took her bicycle and rode away."

"Do you approve of tight skirts?"

"Nope, I think women should leave liquor alone."

Sand and Gravel

(Continued from page 362)

concrete for runways and aprons.

The company operates three power shovels, a Lorain ¾-cu. yd. and a Northwest ¾ cu. yd. which are both used in the pit for loading material to trucks for the screening and washing plant, and a Bucyrus-Erie 15-B ¾-cu. yd., which is used in the pit and also for odd jobs under the contracting end of the business. The Bucyrus-Erie shovel has a backhoe attachment which is used for trenching work. A Haiss loader is also used in the pit for loading trucks from stockpiles. The loader has a capacity of 3 cu. yds. a minute.

Other equipment owned and operated by the company includes a Caterpillar D7 tractor with LeTourneau bulldozer, four Sterling 8-ton, two International 3½ ton and a GMC 2½-ton trucks, a Ford pickup, a concrete plant including a 120-ton Butler bin and two Rex transit mixers mounted on Sterling trucks.

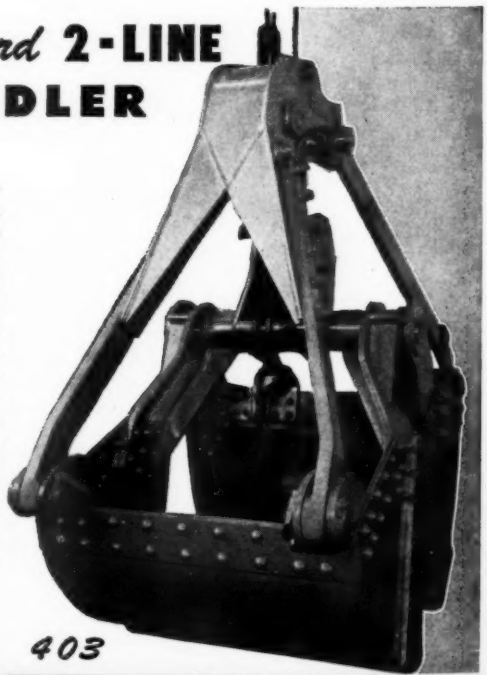
The preparation plant has a 1200-ton per eight-hour day capacity. Trucks dump pit material into a New England feeder which supplies a 24-inch 110-ft. conveyor belt that dumps into a 5 x 10 Kennedy vibrating screen. The material then goes to a Kennedy gyratory crusher and to another Kennedy vibrator and then to a New England rotary screen with ½, ¾, 1, and 2-inch openings. After going through a Kennedy classifier sand is screened to brick and plaster sand by two Allis-Chalmers 3 x 8 vibrating screens.

The pit runs about 45% stone and 55% sand on the average. The plant is run about six months of the year and the material is loaded out from stockpiles which usually average 20,000 tons of sand and 30,000 tons of stone during the winter months.

Water for the plant is supplied by the company's own well which furnishes 1,000 gallons a minute. A Fairbanks-Morse and Layne 6-inch electric pumps supply the plant with water.

At the time of the writer's visit

ERIE *Standard* 2-LINE REHANDLER



THIS compact Lever Arm Rehandler Bucket of normal proportions has ample closing power to fill to capacity in compact materials, and is so designed that the reeving can be adjusted to obtain maximum speed with capacity grabs in loose materials. We have reduced the "height open dimension" thus requiring minimum headroom, enabling you to pile higher and to discharge into higher hoppers. Lighter weight alloy construction provides more pay load (scoop contents) less bucket dead weight. To see this bucket in all detail write for bulletin 403.

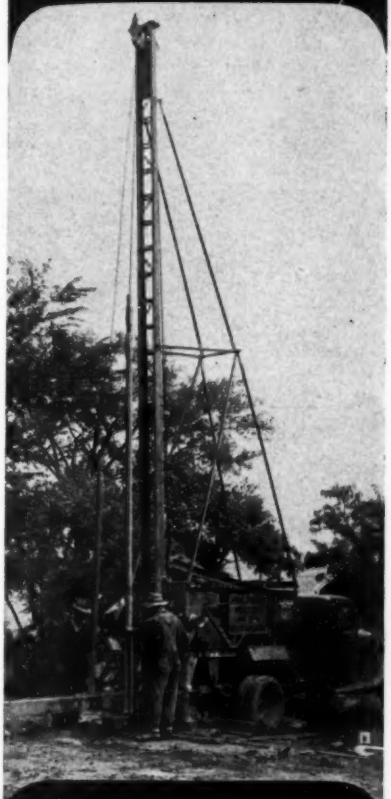
● *Write for Booklet 403*

ERIE BUCKETS • *A Complete Line*

Erie Steel Construction Co., 467 Geist Rd., Erie, Pa.

BUCKETS • AGGREMETERS • PORTABLE CONCRETE PLANTS

PROFIT POSSIBILITIES WORTH LOOKING INTO



If your blast hole drilling requirements are not extensive enough to keep a blast hole drill busy full time, it might pay you to investigate a machine that can handle your drilling as well as earn money for you on contract, rental, or water well jobs over a wide territory. Bucyrus-Erie 21-W and 22-W drills, widely popular among water well drillers, will put down your blast holes with the same speed and power as larger Bucyrus-Erie drills and, in addition, have the spooling capacity to drill the deeper holes which water well work requires. Don't overlook these machines in planning your future equipment setup.

20W46

BUCYRUS ERIE

South Milwaukee, Wisconsin

the New England Sand and Gravel Company was fulfilling a contract to deliver 48,000 cu. yds. of sand and gravel to the Boston Sand and Gravel Company which held a contract for concrete work in the construction of a large General Motors assembly plant at Framingham. Seven trucks were being used to supply the material on a 10-mile round trip haul. Each truck averaged about 11 trips, or 110 tons of material, an eight-hour day.

Fifteen men, in addition to the truck drivers, are on the New England Sand and Gravel Company's regular payroll.

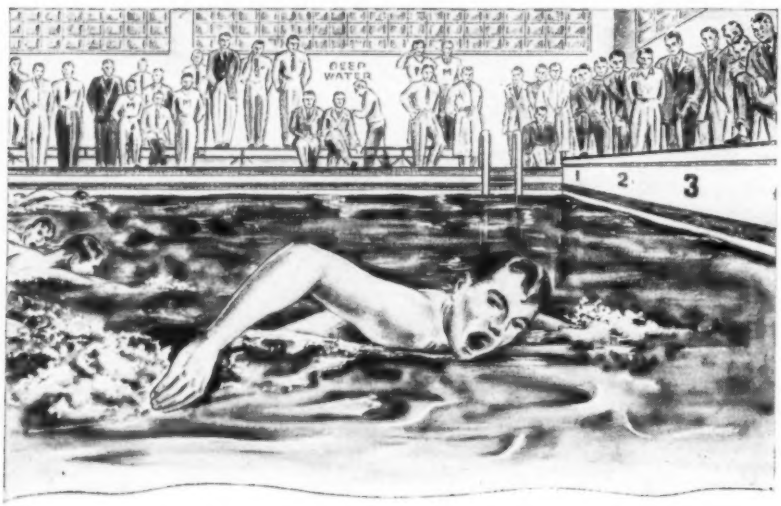
Sea-going Clamshell

(Continued from page 365)

in port the clamshell lifts the material out of the hold and dumps it into a movable hopper on the starboard side of the deck. This hopper guides the material onto the 36-inch wide by 128-ft. long deck conveyor belt which carries the material to a 110-ft. long boom conveyor equipped with a 30-inch belt. This boom is swung over the side of the ship and deposits the material on the stock pile, well away from the side of the ship. The conveyor belt on the ship is driven by an International P-30 engine which starts on gasoline and runs on fuel oil. The conveyor belt on the boom is driven by an electric motor which gets its current from the ship's auxiliary 220-volt power plant.

There are two operators on the 37-B, H. E. Miller and August Zeller. The two operators insure continuous operation of the clamshell. There is a large investment in the sand-sucker and unloading time must be kept at a minimum to insure profitable operation. On the date the writer observed the operations of the Joseph Scobell it was just 18 minutes after the ship put into the port of Erie and was made fast before material was being discharged on the stockpile. It takes an average of 7½ hours to unload the Joseph Scobell.

Captain "Joe" St. John, general manager of the Erie Sand and Gravel Company, originated the method of operation.



The Stroke that Counts!

Skill, endurance and careful training are the ingredients that create a champion swimmer — one with the ability to deliver the stroke that brings him in ahead.

With Wire Rope, the "stroke that counts" is consistent performance . . . and it is just such performance that has made "HERCULES" (Red Strand) the choice of so many wire rope users—especially on jobs where the going is tough.

Like the champion swimmer, the winning ability of "HERCULES" (RED STRAND) Wire Rope is never a matter of chance. Instead, it is the result of definite and determined efforts. If you are not familiar with its time and money saving possibilities, why not give it a chance to prove what it can do on one of your jobs?

Made in a wide range of constructions . . Round Strand and Flattened Strand . . . . Preformed and non - preformed, there's a correct type for every wire rope purpose.

We welcome inquiries requiring specific recommendations.

MADE ONLY BY

A. LESCHEN & SONS ROPE CO.

WIRE ROPE MAKERS
5909 KENNERLY AVENUE

ESTABLISHED 1857
ST. LOUIS 12, MISSOURI, U. S. A.

NEW YORK 6 . . . 90 West Street
CHICAGO 7 . . . 810 W. Washington Blvd.
DENVER 2 . . . 1554 Wazee Street

SAN FRANCISCO 7 . . . 520 Fourth Street
PORTLAND 9 . . . 914 N. W. 14th Avenue
SEATTLE 4 . . . 3410 First Avenue South

Mechanical Refrigeration

(Continued from page 363)

the mass to expand, resulting in cracks and fissures which weaken the entire structure.

In large projects such as Boulder Dam or Grand Coulee Dam, it is estimated that it would take more than 100 years for the mass of concrete to harden to its permanent state. Through the use of mechanical refrigeration, the concrete in the two dams was cooled to its permanent average temperature within five weeks, completing the full cycle of expansion and contraction before the dam was entirely completed.

The cooling process was carried on in two stages (1) circulation of air cooled water and (2) circulation of refrigerated water through a pipe system imbedded in the concrete. Resistance thermometers were used to make periodic checks of the temperature of the concrete to determine when the cooling should be stopped. The

water was circulated through the pipes at the rate of approximately four gallons per minute.

Nearly 14,000,000 cu. yds. of concrete were cooled in the two dams at a cost of about 22 cents per cu. yd. Government officials estimate that the artificial processes used to cool the concrete have saved the government millions of dollars in repair bills since the two projects were completed.

Another example of the part mechanical refrigeration plays in the construction industry is the improvement it has made in various types of tools.

Pneumatic drills subjected to cold treatment can cut more than 250 holes without being resharpened, compared to a maximum of 40 to 50 holes with drills not cold treated. Saws and other cutting tools used in construction work have a longer life if the metal in them has been treated in sub-zero temperatures.

Cold treated rivets provide greater strength and durability than those which receive only heat treatment, according to reports of manufacturers to REMA.

Through the simple process of circulating refrigerated water over welding tips, welders can make as high as 800 welds with one tip compared to a maximum of 30 or 40 welds with an uncooled welding tip, another advantage made possible by mechanical refrigeration.

New Equipment

(Continued from page 367)

length, center grip and 1/8, 5/32 and 3/16-inch sizes; 14-inch lengths, end grip.

Both electrodes are recommended for weld-surfacing where an austenitic (work-hardening) surface of medium hardness and good corrosion resistance is required. It provides excellent resistance to impact and abrasion.

Shape of weld bead with either electrode generally is convex.

Magnetic Drill Extractor

Manufacturer: Dings Magnetic Separator Co., 509 E. Smith St., Milwaukee 7, Wis.

Claims: A magnetic device made of a new type of Alinco magnetic steel to be used for removing drill bits, diamond bits, and broken drill rod from rock drill holes. Capable of lifting approximately 25 times its own weight, the Extractor can often save redrilling holes in which jackbits have broken off, or sections of drill rod lost. Made in 1¼-inch and 1¼-inch diameters, the Extractor is used by fastening to the face of an old drill bit and by putting into the drill hole at the end of a length of drill rod or wooden pole.

Miniature Hydraulic Control

Manufacturer: Sperry Products, Inc., Hoboken, N. Y.

Claims: Smallest hydraulic remote control of its type and weight yet offered to the industrial markets and it is applicable to use as a control factor for throttles, mixture, governor, and all sorts of position indicator controls.

Transmitter and receiver, made of bronze, together weigh 3.7 pounds. Any motion of the transmitter arm will be duplicated by the receiver arm. Either arm will move through an arc of 60 degrees, and the receiver arm may be drilled at any location to obtain the desired linear travel of the actuating rod. The complete

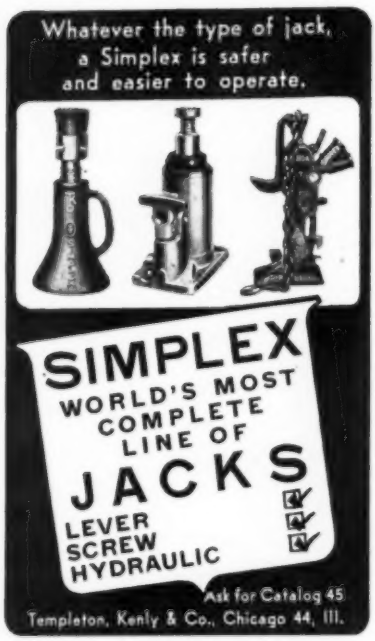
system is dust-proof and waterproof. Transmitter and receiver may be joined by as much as 35 feet of connecting tubing without experiencing any difficulty, and lengths even longer than that may be used where conditions of temperature and load will warrant it.

MEMO TO ALL CONSTRUCTION SUPTS.
For Bigger Payload Performance
...the logical first choice is HAISS HI-POWER. Unique for Sta-in-line reeving, out-of-the-muck sheaving. Weight placed for highest digging power, with closing ratios up to 7:1. Write for facts.
HAISS
HI-POWER
GEORGE HAISS MFG. CO., INC., 144th Street & Park Ave., New York 51, N. Y.

Notes from the manufacturers

Pennsylvania-Dixie Cement Corporation, New York, announces the following appointments: W. H. Klein, Vice President, Research and Development, with headquarters in New York City; Carl J. Lofstedt, General Operating Manager, with headquarters in Nazareth, Pa.

The Caterpillar Tractor Co., Peoria, Ill., announces that Cornell E. Jones has been named Sales Development Manager to replace Kenneth F. Park, recently appointed to the newly created post of engineering consultant on all matters pertaining to the earthmoving field.



United States Rubber Company, New York, has appointed Walter F. Spoerl as general sales manager of the mechanical goods division. Mr. Spoerl succeeds Herman A. Verlien who died suddenly last February.

National Patent Council, Gary, Indiana, elected seven smaller manufacturers to serve as Governors of National Patent Council and to lead a nationwide educational program in defense of the patent system. Elected were: Henry K. Norton, treasurer, Walter Kidde & Co., New York; Melvin M. Johnson, Jr., president, Johnson Automatics, Inc., Boston, Mass.; E. A. Terrell, president, Terrell Machine Co., Charlotte, N. C.; Phil T. Sprague, president, The Hays Corporation, Michigan City, Ind.; W. L. McKnight, president, Minnesota Mining and Manufacturing Co., St. Paul, Minn.; C. B. Hasford, president, L. P. G. Equipment Corporation, Dallas, Texas; and Jay C. Perrin, president, Towlsaver, Inc., Los Angeles, Cal.

General Box Company, Chicago, announces the promotion of George T. Walne to the position of Manager of the Central District Sales Territory.

Homestead Valve Manufacturing Co., Coraopolis, Pa., has appointed W. E. Thomas as Division Sales Manager in charge of valve sales in the Southeastern states territory with headquarters in Atlanta, Ga. Thomas was formerly Southeastern Division Manager of the Chicago Metal Hose Co.

F. W. Dodge Corporation, New York, announces the election of four regional vice presidents to carry out the recent decision of its Board of Directors to decentralize construction news division operations. Those elected are: J. T. Little, of Philadelphia, regional vice president for the eastern states; Ralph M. Hairston, of Atlanta, southern states; Cyrus G. Fanning, of Chicago, Middle West; and Carl S. Bennett, of Los Angeles, western states.

The B. F. Goodrich Company, Akron, Ohio, has appointed W. D. Jones manager of the Industrial Tire and Track division. Jones succeeds Charles H. Kanavel, named Los Angeles district manager for the automotive, aviation and government sales division.

John A. Roebling's Sons Company, Trenton, N. J., announces the appointment of Fred J. Maple as Manager of Exhibits. Maple, formerly Manager of Advertising, was replaced in that position by Albert Neroni who previously had been assistant manager of Advertising for Anaconda Wire and Cable Co., Inc.

International Harvester Company, Chicago, has established in Chicago a manufacturing research project devoted to the improvement of manufacturing methods and procedures for the entire line of International Harvester Company products. The research activities will be carried on in the plant operated during the war by Foote Bros. Gear & Machine Corp., and the project will occupy about 230,000 square feet of floor space. The company will invest a substantial sum of money in the improvement of the property and in the procurement of necessary equipment and facilities.

New trade literature

Title: **"Model F Bottom Dump Euclid"**
Subject: Eight-page catalog folder describes the Bottom-Dump Euclid and contains illustrations, technical information and specifications of this model.
Where to Get: The Euclid Road Machinery Co., Cleveland 17, Ohio (Free).

(Continued on page 400)

NEW LIFE...

For Parts Subject to Impact and Abrasion *Hard Surface with P&H HARMOMANG!*

FREE — This handy vest-pocket electrode guide tells all about Harmomang and other P&H electrodes. Write for your copy.

Stop expensive delays and replacements — hard surface wearing parts of manganese and carbon steels with P&H Harmomang. It's the fast, easy way to keep equipment working longer.

You'll be amazed at the increased life given to old parts — the increased protection against both impact and abrasion. Weld metal deposited by Harmomang gives a hardness range up to 43-46 Rockwell C. Whether you use an AC or DC machine, it will pay you to keep a stock of Harmomang electrodes on hand for building up and hard surfacing. See your P&H representative or write for information.

P&H HARNISCHFEGER CORPORATION

General Offices:
4517 W. National Ave.
Milwaukee 14, Wis.

TO ADVERTISE: All advertising in this section is payable in advance. Rate: 60c per line, or $7.20 per inch of 12 lines. Minimum charge $2.40. No discounts; no commissions. If no change in copy is desired, three continuous insertions are offered for the price of two. Read these instructions carefully. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Count your own copy to save delay. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January issue closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

For Sale: 25 yd. dragline. Box 3153

½ yd. Speeder late model. Shovel-dragline.
¾ yd. Northwest almost new. Shovel-dragline.
1 yd. Northwest shovel-dragline, good cond.
1½ yd. Koehring shovel-dragline, good cond.
2 yd. Bucyrus-Erie dragline. Box 3157

For Sale: ½ yd. and 1½ yd. Shovel, dragline combination. Box 3150

For Sale or Rent: Quarry in southern Lancaster County. Millions of tons above water level. W. F. Geiger, Quarryville, Pa.

For Sale: 1 yd. rope crowd shovel front end. Box 3151

½ YD. SHOVEL FRONT for Byers Model 60. Good condition.
Blazer-Jenkins Concrete Co.
Gallipolis, Ohio. Phone 480

For Sale: 1 yd. & 1¾ yd. Dragline buckets. Box 3152

1 Bucyrus-Erie 37-B shovel front complete with boom, dipper sticks and bucket with all parts as taken from 37-B machine 25018. Condition excellent. Box 3156

25 yd. electric dragline 180 ft. boom. New condition. Box 3159

Complete 60 ton per hour portable rock plant almost new and all Cat diesel driven. Delivery August. Box 3158

Sixty foot boom, 25 foot jib and block, counter weight, and long track side frames for Bucyrus-Erie Model 54-B. Write Gregory & Poole, Wolf Summit, West Virginia.

Electric shovels, 3 and 4 yd., corner cats.
Diesel draglines on trucks, 110'-100' booms, 2 and 3 yd. buckets. Adaptable for barge mounting.
Monighan 3 yd. electric walking dragline.
Athey Mobiloader for D8 or RD8 Cat tractor.
2 yd. Tournapulls and Tiltdozers. New.
75 HP, AC, 3 drum electric hoist derricks.
Compressors—250 cu. ft. I-R. 2 stage air cooled port, with Hesselman oil engine. Rebit. Also 950'-1600'-3000', with syn. motors.
Barco gas powered hammers & breakers. New.
20 HP gasoline motor on skids. $150.00.
¾ yd. rehandling clam bucket. Low price.
James Wood, 53 West Jackson, Chicago 4, Ill.

Surplus Hydraulic Press Stock Available For Immediate Shipment.

5 Beco Portable Hydraulic Presses—100 tons capacity consisting of: Press cylinder (ram), 4 speed pump with high pressure globe valve, 5' 0" high pressure hose, 5' 0" oil return hose.
4 100 ton Press Frames, including:
1 Frame head
1 Cylinder back plate
4 Alloy steel back plate rods, 1"x20" with 8 nuts
1 Frame base with tie rods and nuts
4 Alloy steel frame rods 1"x48" with nuts
2 Extension sets, consisting of:
4 Sprocket lugs
4 Rod connectors
4 Extension rods, 24" with nuts
4 Extension rods, 38" with nuts
4 Extension rods, 48" alloy steel, with nuts.
1 Frame for track repair work consisting of:
1 Special back plate
3 Rods with nuts to attach press cylinder to track press frame
2 pcs. 10' 0" High pressure hose with fittings for 100 ton Press.
9 Pressure gauges

Bucyrus-Erie Company
South Milwaukee, Wisconsin

One complete set of 30" track links for Bucyrus-Erie 54-B shovel. Treads have had about sixty days service. Box 3155

6B Smith gyratory crusher, complete with motor, starter and fuse boxes, like new.
Universal vibrating screen, size 3' by 8' single deck, perfect mechanical condition. Box 3154

For Sale

3 Coleman dump trucks, 7½ yd. bodies—5 ton chassis. Excellent condition, perfect tires and spares. Many parts.

Magajupa Mining Company
220 West Third—Phone 3177
Joplin, Missouri

PRICED FOR QUICK SALE:

NORTHWEST DRAGLINE WITH 1¾ YD. BUCKET; FIVE BOTTOM-DUMP EUCLIDS, NINE YD. CAPACITY G. M. DIESEL POWER, EIGHTEEN INCH TIRES; ONE CATERPILLAR TRACTOR WITH LETOURNEAU BULLDOZER; ONE ADAMS MOTOR-GRADER, WITH 12 FT. BLADE, TANDEM DRIVE; THREE KOHLER LIGHT PLANTS. Will sell as a unit or will sell hauling equipment separately. Box 3144

SURPLUS DIPPERS FOR BUCYRUS-ERIE SHOVELS

2—¾ cu. yd. Skimmer Scoop Dipper—10-B.
2—¾ cu. yd. Drag Shovel Dipper—17-B.
3—¾ cu. yd. Skimmer Scoop Dipper—17-B.
1—¾ cu. yd. Welded Dipper—21-B.
1—1¼ cu. yd. Drag Shovel Dipper—38-B.
1—1½ cu. yd. Heavy Duty All Cast Dipper 42-B.
1—1½ cu. yd. type 4 Med. Duty Dipper.
1—2 cu. yd. Rock Dipper—75-B.
1—2¼ cu. yd. Inserted Type Dipper—50-B.
1—2½ cu. yd. Inserted Type—55-B.
1—3½ cu. yd. Coal Loading Dipper—75-B.
1—4 cu. yd. Type IV Medium Duty Dipper 100-B.

F.O.B. Works
Write for any further information desired

BUCYRUS-ERIE COMPANY
Parts Department
South Milwaukee Wisconsin

For Sale —

SHASTA DAM SAND AND GRAVEL PLANT AND 10-MILE CONVEYOR EQUIPMENT

Including:
6000—36" AND 42" IDLERS.
Pulleys and Drives.
LATE MODEL 200 HP., 1800 R.P.M. GE MOTORS, complete with Starting Equipment.
Western Gear Reducers, 200 HP., 40 to 1 Ratio.
8 x 12 MARCY ROD MILL.
Dorr Hydroseparator.
30" Tripper and Trestle.
Merrick Weightometer.
All Types of Pumps, complete with Drives.
42" Pendulum Boom Conveyors, 100' and 200'.
Electric Line Equipment, Transformers, Motors and Supplies.
Other Miscellaneous Contractors' Equipment.

Subject to Prior Sale

Write, Wire or Telephone Redding 1440

COLUMBIA CONSTRUCTION CO., INC.
Box 579 Redding, California

FOR SALE — SURPLUS EQUIPMENT

30-B Bucyrus steam crane No. 4112, 55 ft. boom, fairleads and Page 1 yd. dragline bucket, light plant, equipped piledriving, extra high lift shovel front 1 yd. Spare parts.
41-B Bucyrus steam crane No. 4994, 50 ft. boom, 13 ft. jib, fairleads and 1 yd. dragline bucket, light plant, oversized boiler, equipped for piledriving, reconditioned late 1944. Spare parts.
2—¾ yd. Owen type J clamshell bucket.
2—No. 7 McKiernan-Terry hammers, flat anvils.
1—9-B-3 McKiernan-Terry round anvil. (NEW)
Metco metallizing unit complete, Type E-2 gun, hose, wire, shaft and air unit. (NEW).

JUTTON-KELLY COMPANY
13240 Alber Ave., Dearborn Phone OR-8300 Michigan

1—New 12-yd. L.P. LeTourneau Scraper.
1—Used 80 H.P. Crawler Cletrac
2—Used 7-yd. Continental Scrapers
1—Used 12-yd. Austin-Western Scraper
Box 3149

For Sale: Following equipment all located at Zap, North Dakota. May be inspected at any time.
3 Vulcan steam locomotives, 18 ton, 42" gauge.
2 Davenport steam locomotives, 21 ton, 42" gauge.
1 Whitcomb gas locomotive, 14 ton, 42" gauge.
10 18 ton roller bearing steel bottom dump hopper cars, 42" gauge.
1 Bucyrus-Erie GA2 shovel 1¼ yard coal bucket.
1 International TK40 gas caterpillar tractor.
1 1½ yard manganese lip ore shovel bucket.
1 1¼ yard manganese lip ore shovel bucket
1 3 yard Daniels Murtaugh dragline rock bucket.
1 Atlas Imperial 65 h.p. diesel engine.
1 Fairbanks Morse 20 h.p. diesel engine.
1 150 h.p. Bros steam boiler
1 Dryer, steam, 100 lbs. pressure, Capacity 20 tons material.
Approximately 325 tons railroad steel, 45 to 90 lbs.
Also large quantity angle bars, frogs, switch points, spikes, bolts, etc.
Address inquiries to:

DAKOTA COLLIERIES COMPANY
1017 Lumber Exchange
Minneapolis 1, Minnesota

(For Sale Continued on page 400)

For Sale

(Continued from page 399)

One practically new 4 cubic yard type AX Bucyrus-Erie dragline bucket. Box 3145

Shovel front for 37B, first class condition price $1500 and located Duluth, Minn. Contact Delta Farms Company, Lockport, La.

3—Ford Grico tractors, two 95 H.P. motor each unit, 10 wheels. Excellent buy.

New York Trap Rock Corporation
230 Park Avenue
New York 17, New York

ENGINEERS AND MECHANICS step up your own skill with the facts and figures of your trade. Audels Mechanics Guides contain Practical Inside Trade Information in a handy form. Fully Illustrated and Easy to Understand. Highly Endorsed. Check the book you want for 7 days' Free Examination. Send No Money. Nothing to pay postman.

- ☐ Marine, $4
- ☐ Machinist, $4
- ☐ Shipfitter, $1
- ☐ Radio, $4
- ☐ Diesel, $2
- ☐ Mathematics, $2
- ☐ Sheet Metal, $1
- ☐ Blueprint, $2
- ☐ Electricity, $4
- ☐ Welders, $1
- ☐ Plumbers, $6
- ☐ Carpenters, $6
- ☐ Auto, $4
- ☐ Refrigeration, $4

If satisfied you pay only $1 a month until purchase price is paid.

AUDEL, Pub., 49 W. 23rd St., N. Y. 10, N. Y.

EQUIPMENT WANTED

Steam or diesel driven Whirley. Box 3160

POSITIONS WANTED

Operator desires electric shovel work. 7 years experience on Bucyrus-Erie 170-B. Can do shovel repair work. Will take foreign job if permanent. Single, 33 years old, in good health. Excellent references. Box 9261

Shovel operator desires steady work in quarry or open pit mine. Familiar with Bucyrus-Erie equipment. Can furnish excellent references. Married. 40 years old. Box 9268

New Trade Literature

(Continued from page 398)

Title: **"Single-Acting Pile Hammers"**
Subject: A 16-page bulletin of detailed information describing the special purpose for which these single-acting hammers are intended, listing a number of their advantages, including underwater operation. Specifications, cross-section diagrams and listing of component parts are included, also detailed data on operation.
Where to Get: McKiernan-Terry Corp., Park Row Bldg., N. Y. 7, N. Y. (Free)

Title: **"A New Traxcavator"**
Subject: This bulletin announces the addition of a new model to the line of TRAXCAVATORS. The Model IT4 is illustrated and described in the four-page folder. A specification sheet on the tractor shovel is also included.
Where to Get: Trackson Company, Milwaukee 1, Wis., Bulletin 895 (Free).

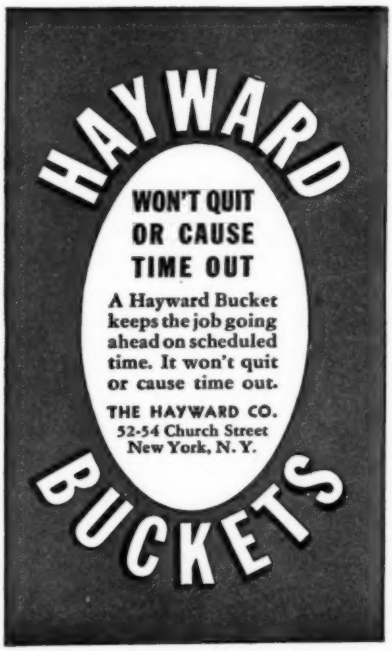
Title: **Opportunities for Productive Work Through Mineral Industries Research**
Subject: This handsome 36-page booklet illustrates the important relationship between the development of mineral resources and the economy of the state of Pennsylvania. The School of Mineral Industries' work in the education of technological leaders and aid rendered in the solution of technical problems is graphically shown.
Where to Get: School of Mineral Industries, State College, Pa., Circular 20 (Free)

Title: **Scarce Materials Timetable**
Subject: New Supply timetable indicating when the end of current material shortages may be looked for. Multiple factors influencing the supply situation in 21 basic raw materials are brought up to date in the table along with calculations on the probable end of acute scarcities and the eventual date when supply and demand will be balanced.
Where to Get: N. Y. Journal of Commerce, 63 Park Row, New York 15, N. Y. (25c per copy)

Title: **Buda Engine Catalog**
Subject: Featuring a new line of "One-Sixty-One" Series Diesel engines for automotive, industrial, and marine service, this recently published 12-page catalog includes pressure lubrication data table and other descriptive information relative to the application of Buda Diesels to industry.
Where to Get: The Buda Co., Harvey, Ill. (Free)

Title: **LeTourneau Wall Chart**
Subject: Prepared especially for servicemen and mechanics, a new quick-reference chart which stresses the use of electrodes designed specifically for each type of welding job. Measures 16½"x21½". Describes five types of Tournaweld electrodes and lists with each type its built-in characteristics and purposes, available sizes, distinguishing color, and proper current for most efficient operation. Sketches illustrate typical applications.
Where to Get: R. G. LeTourneau, Inc., Peoria, Ill. Ask for Form "WT-111" (Free).

Title: **Manufactufing Excellence**
Subject: Many of the manufacturing machines, processes and details which develop "Caterpillar" products are editorially and pictorially depicted in this 16-page booklet. The illustrations include pictures of the finished products in their various fields of operation, where the values of manufacturing methods are tested under the stress of the job.
Where to Get: Caterpillar Tractor Co., Peoria 8, Ill. Request for 9355 (Free)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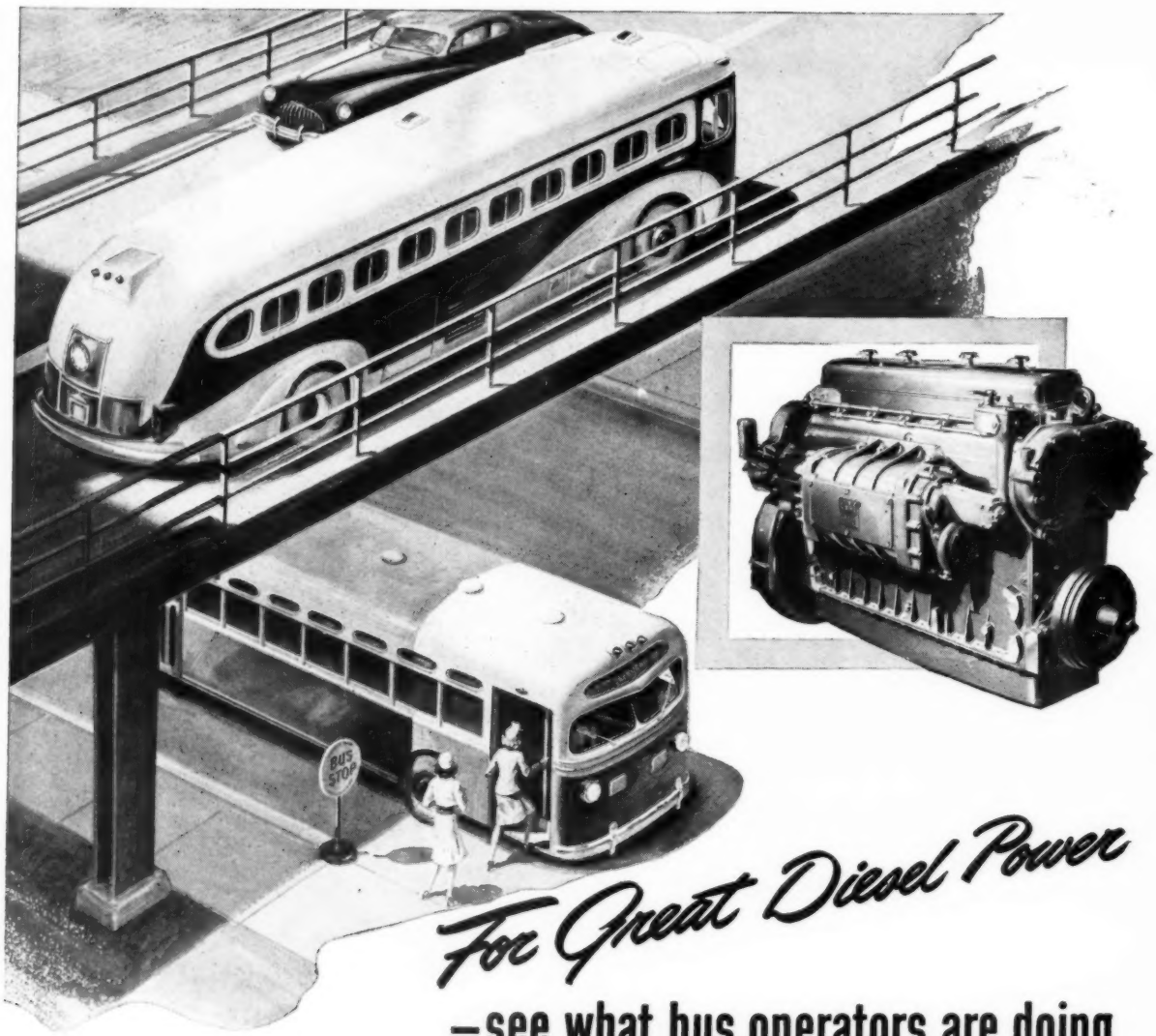

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